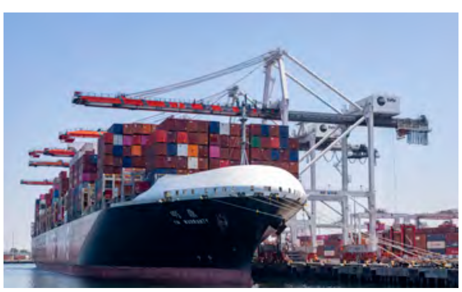
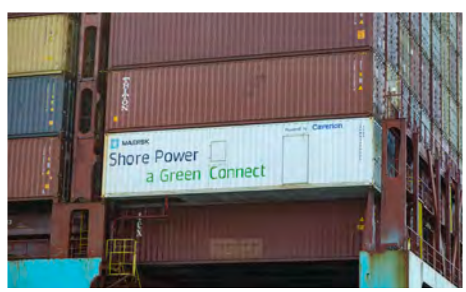
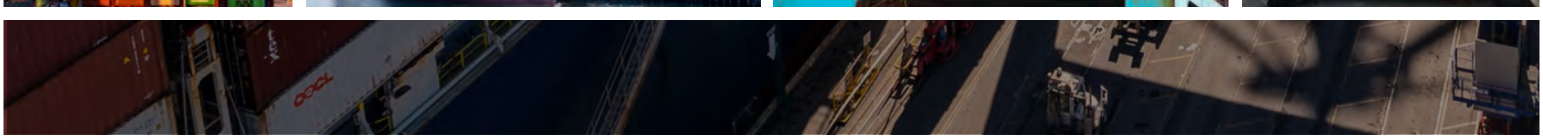
PORT OF LOS ANGELES

Inventory Of Air Emissions 2022

Technical Report | August 2023







THE PORT OF LOS ANGELES

STARCREST CONSULTING GROUP, LLC
ENVIRONMENTAL MANAGEMENT · AIR QUALITY · CLIMATE · SUSTAINABILITY

INVENTORY OF AIR EMISSIONS FOR CALENDAR YEAR 2022

Prepared for:

THE PORT OF LOS ANGELES

August 2023

Prepared by:

STARCREST CONSULTING GROUP, LLC
ENVIRONMENTAL MANAGEMENT
AIR QUALITY • CLIMATE • SUSTAINABILITY

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Please note that there may be minor numerical inconsistencies between the various sections, tables, and figures of this report, due to rounding associated with emission estimates, percent contribution, and other calculated numbers. Estimates are calculated using more significant figures than presented in the various tables. A detailed San Pedro Bay Ports Emissions Inventory Methodology Report is available on the Port's website.[1] This 2022 Air Emissions Inventory correlates with Version 4 of the Methodology Report.

EXECUTIVE SUMMARY

The Port of Los Angeles (Port or POLA) annual activity-based emissions inventories serve as the primary tool to track the Port's efforts to reduce air emissions from maritime industry-related sources through implementation of measures identified in the San Pedro Bay Ports (SPBP) Clean Air Action Plan (CAAP) and regulations promulgated at the state and federal levels. Development of the annual air emissions estimates is coordinated with a technical working group (TWG) comprised of representatives from the Port, the Port of Long Beach (POLB), and the following air regulatory agencies: U.S. Environmental Protection Agency, Region 9 (EPA), California Air Resources Board (CARB), and the South Coast Air Quality Management District (South Coast AQMD). Emissions estimated in this report are consistent with CARB and US EPA published methodologies. As additional data is gathered, the Port plans to collaborate with TWG to update alternative fuel emission factors, reductions associated with the use of renewable diesel, and OGV emission changes with engine load, if deemed appropriate.

Summary of 2022 Activity and Emission Estimates

Activity and emissions returned to a normal status in the latter part of 2022 after the 2021 record cargo volumes and major supply chain disruptions. In 2022, the Port of Los Angeles reported a 9.9 million twenty-foot equivalent units (TEUs) which is seven percent lower than the 2021 record cargo volume of 10.7 million and makes 2022 the second-busiest year in the Port's history. After the 2021 record volumes, the Port continued to experience some congestion in the first half of 2022. The number of vessels waiting to berth began to lessen mid-year allowing terminals to work more efficiently. By the latter part of 2022, vessels at anchorage were normal count which resulted in overall lower vessel emissions in 2022 as compared to 2021. In 2022, terminals were able to load and unload ships at a more normal operating mode and the emissions for the other source categories are slightly lower than the previous year.

Table ES.1 presents the number of vessel arrivals and the container cargo throughput for calendar years 2005, 2021, and 2022. The number of vessel arrival calls does not include articulated tug barges (ATBs) or barge calls that called the Port as these are included in the harbor craft section. The cargo throughput decreased 7% in 2022 as compared to the previous year. Containership arrivals decreased 5% and the average TEU per call decreased 2% as compared to the previous year.

[1] POLA, *www.portoflosangeles.org/environment/air-quality/air-emissions-inventory*

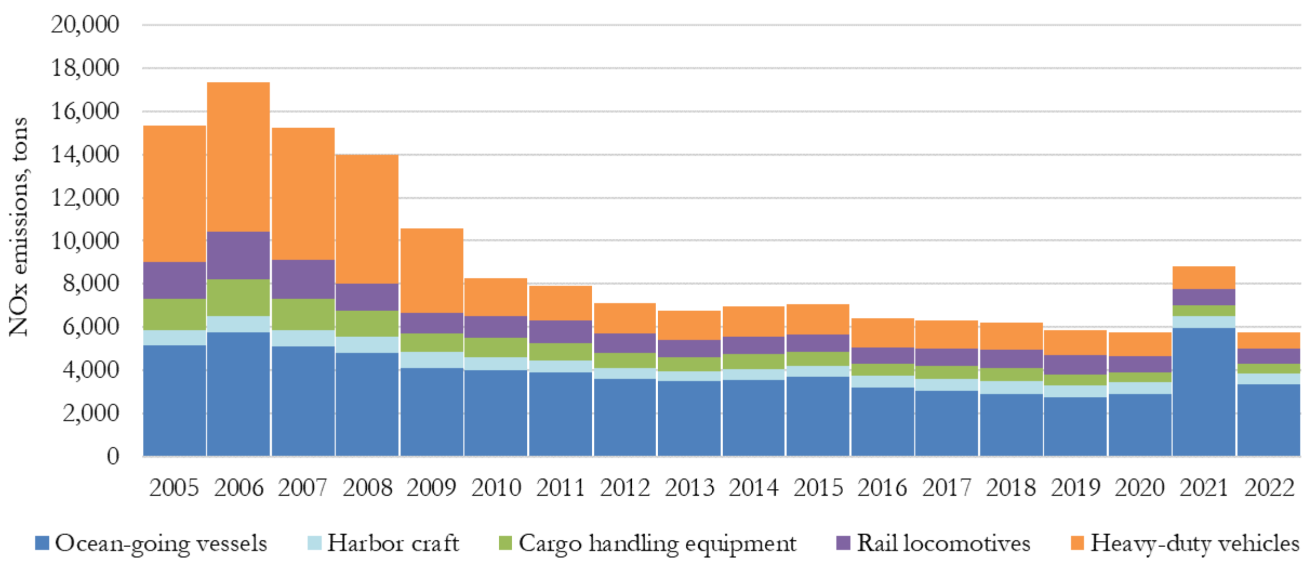
Comparing 2022 to 2005, the TEU throughput increased 32%, containership arrivals decreased 41%, and the 11,327 TEUs per call is a 124% increase. The decrease in containership calls with the significant increase in TEU per call shows the impact that larger containerships have made since 2005.

Table ES.1: Container Throughput and Vessel Arrivals Comparison

Year	TEUs	All Arrivals	Containership Arrivals	Average TEUs/Call
2022	9,911,159	1,563	875	11,327
2021	10,677,610	1,609	924	11,556
2005	7,484,625	2,458	1,479	5,061
Previous Year (2021-2022)	**-7%**	**-3%**	**-5%**	**-2%**
CAAP Progress (2005-2022)	**32%**	**-36%**	**-41%**	**124%**

This annual report, which tracks emissions from year to year, includes the anchorage and loitering emissions that occur within the geographical domain. The effects of the container vessel queuing process[2] implemented mid-November 2021 to increase safety and improve air quality near the ports of Los Angeles and Long Beach, is reflected in the 2022 results. The NO_x and DPM trend charts shown in Figures ES.1 and ES.2 reflect the 2005 to 2022 emissions trend and show the reduction in 2022 emissions as compared to the unprecedented 2021 emissions. The lower 2022 emissions after the 2021 spike show that NO_x emissions are similar to 2020 levels.

Figure ES.1: NO_x Emissions Trend by Source Category



[22] Marine Exchange, Southern California, *www.mxsocal.org/*

The ocean-going vessel (OGV) emissions were still higher than 2020 because vessels still had to wait for berth availability in the early part of 2022. The reduced truck emissions in 2022 helped with the overall NO_x and DPM emissions. The DPM emissions are almost as low as 2020 emissions as shown in Figure ES.2.

Figure ES.2: DPM Emissions Trend by Source Category

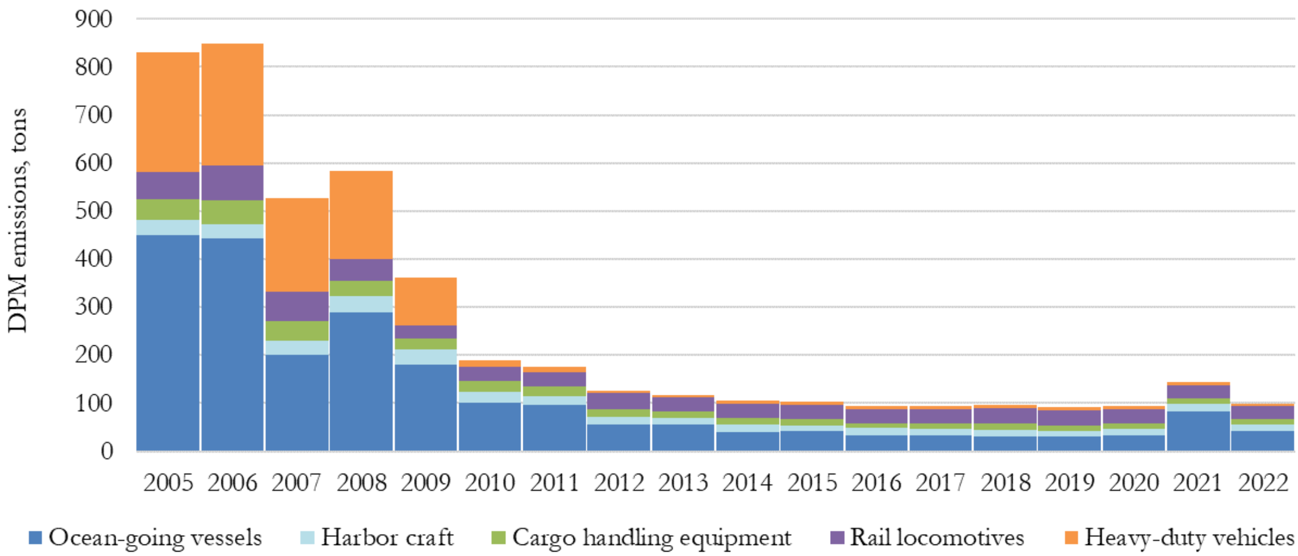


Table ES.2 summarizes the 2022 total maritime industry-related mobile source emissions of air pollutants in the South Coast Air Basin (SoCAB) by the following categories: ocean-going vessels (OGVs), harbor craft, cargo handling equipment (CHE), locomotives, and heavy-duty vehicles (HDV). In 2022, approximately 50-60% of the Port's PM and NO_x emissions are attributed to OGV.

Table ES.2: 2022 Maritime Industry-related Emissions by Category

Category	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Ocean-going vessels	66	60	43	3,369	129	360	143	271,236
Harbor craft	13	13	13	499	0	100	25	50,811
Cargo handling equipment	12	11	11	425	2	672	88	170,634
Locomotives	26	24	26	717	1	175	41	61,145
Heavy-duty vehicles	5	5	5	756	4	355	44	420,243
Total	**123**	**114**	**98**	**5,765**	**136**	**1,662**	**341**	**974,069**

DB ID457

In order to put the maritime industry-related emissions into context, the following figures compare the Port's contributions to the total emissions in the SoCAB by major emission source category. The pie charts reflect the latest SoCAB emissions from the 2022 Air Quality Management Plan (AQMP)[3].

Figure ES.3: 2022 PM_{10} Emissions in the South Coast Air Basin

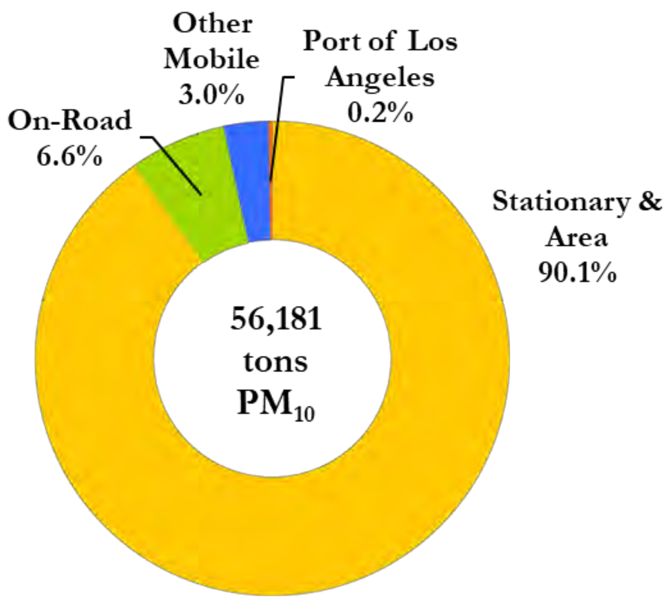
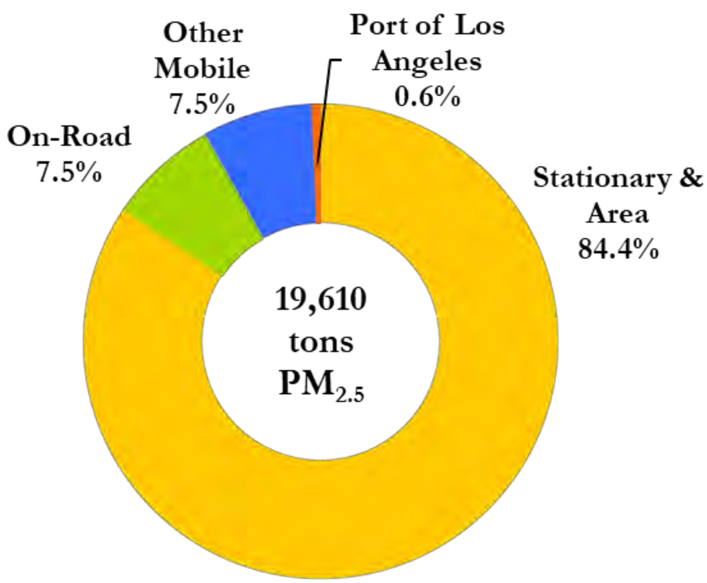


Figure ES.4: 2022 $PM_{2.5}$ Emissions in the South Coast Air Basin



[3] See South Coast AQMD webpage for AQMP: *www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan*

Figure ES.5: 2022 DPM Emissions in the South Coast Air Basin

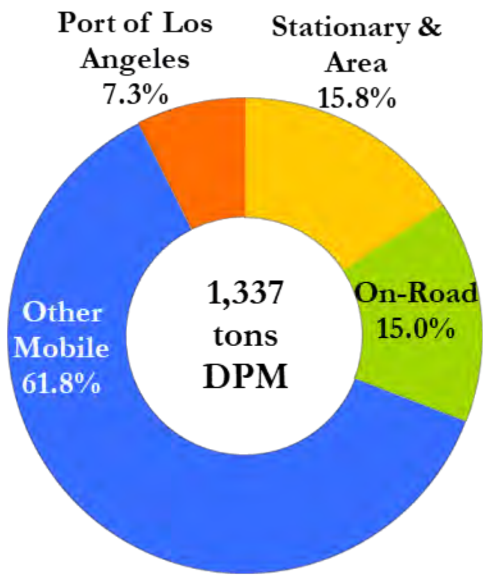


Figure ES.6: 2022 NO_x Emissions in the South Coast Air Basin

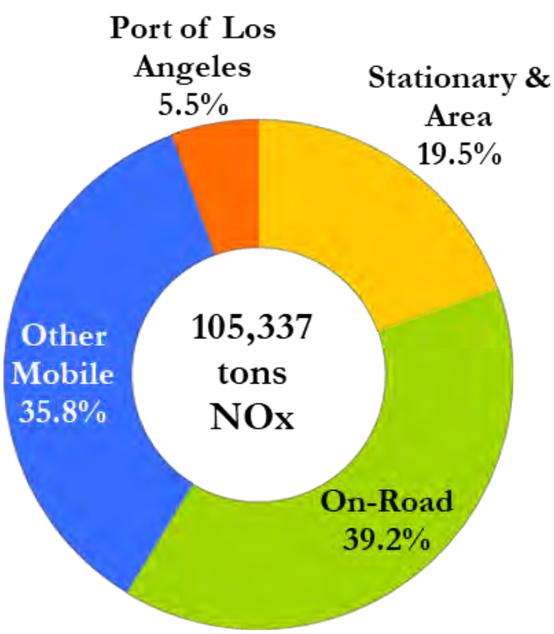
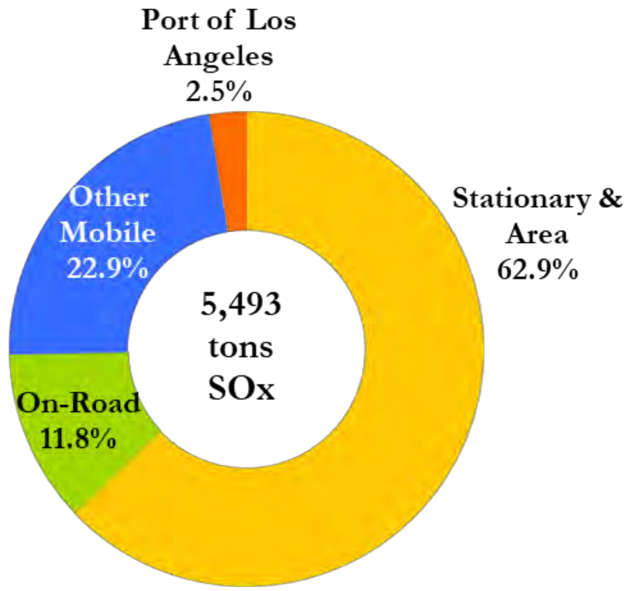


Figure ES.7: 2022 SO_x Emissions in the South Coast Air Basin



Comparison of 2022 Emissions to 2005 and 2021

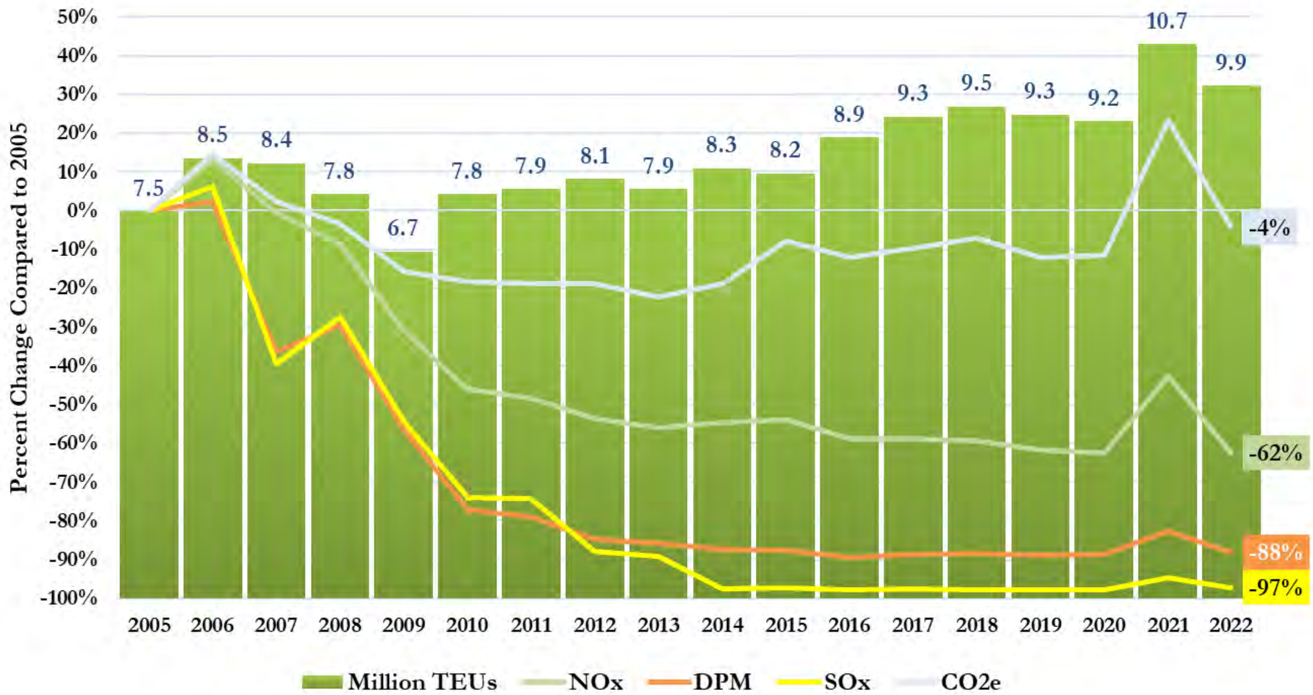
Table ES.3 presents the total net change in emissions from all source categories in 2022 as compared to the previous year and to 2005, all using 2022 methodology. In order to maintain the consistency between the years compared, the previous years' emissions are recalculated whenever new estimation methodologies are introduced. Previous years' emissions were re-estimated for cargo handling equipment to be consistent with CARB's latest emissions factors for Tier 3 and 4 engines.

Table ES.3: Maritime Industry-related Emissions Comparison

EI Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022	123	113	98	5,765	136	1,662	341	974,069
2021	189	174	143	8,796	256	2,039	475	1,253,207
2005	991	851	830	15,335	4,839	3,576	824	1,017,558
Previous Year (2021-2022)	**-35%**	**-35%**	**-31%**	**-34%**	**-47%**	**-19%**	**-28%**	**-22%**
CAAP Progress (2005-2022)	**-88%**	**-87%**	**-88%**	**-62%**	**-97%**	**-54%**	**-59%**	**-4%**

Figure ES.8 depicts the maritime industry-related emissions trend for NO_x, DPM, SO_x, and CO_2e. The green bars depict the TEUs cargo throughput for each calendar year. DPM and SO_x have decreased significantly since 2005. After the spike in emissions in 2021, NO_x and CO_2e emissions are lower in 2022.

Figure ES.8: Emissions Trend



Comparison of 2022 Emissions by Source Category to 2021

Calendar year 2022 saw a return to near normal port operations after two challenging years since the COVID-19 pandemic. Section 9 provides more information about the energy consumption and newer technology comparison by source category that contributed to the emission changes. Major highlights by source category include:

- For OGVs, emissions are lower (40% to 49%) in 2022 compared to 2021 primarily due to vessel activity at anchorage returning to normal and less vessels awaiting berth in 2022 as compared to 2021 during the pandemic induced congestion. The anchorage emissions are 75% lower in 2022 compared to 2021.

- For harbor craft, emissions are lower (5% to 12%) due to less activity for crew and supply boats, commercial fishing vessels and ocean tugs, along with overall newer fleet and decline in vessel count for commercial fishing vessels.

- For CHE, the 2022 emissions are lower (7% to 14%) than 2021 due to lower equipment activity, which is in line with the 7% TEU cargo decrease. In 2022, terminal operators continued to switch to renewable diesel which lowers the CO_2e tailpipe emissions.

- For locomotives, the slight decrease in emissions (3% to 6%) is due to reductions in the line haul fleet composite emission factors resulting from line haul fleet mix improvement.

- For heavy-duty vehicles, the PM and NO_x emissions decreased (17% and 27%, respectively) due to continued fleet turnover to newer trucks in 2022 as a result of the Port tariff. The share of mileage driven by 2014 and newer model year trucks increased from 48% in 2021 to 64% in 2022, which is a significant milestone.

Table ES.4 presents the 2022 and 2021 emissions comparison by source category. Emissions decreased across the board for all source categories in 2022 as compared to 2021 due to lower TEU throughput and returning to normal operations after a challenging 2021.

Table ES.4: Maritime Industry-related 2022-2021 Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022								
Ocean-going vessels	66	60	43	3,369	129	360	143	271,236
Harbor craft	13	13	13	498	0	100	25	50,811
Cargo handling equipment	12	11	11	425	2	672	88	170,634
Locomotives	26	24	26	717	1	175	41	61,145
Heavy-duty vehicles	5	5	5	756	4	355	44	420,243
Total	**123**	**113**	**98**	**5,765**	**136**	**1,662**	**341**	**974,069**
2021								
Ocean-going vessels	127	117	83	5,956	248	605	255	504,842
Harbor craft	15	15	15	565	1	112	29	53,521
Cargo handling equipment	13	12	12	481	2	779	97	184,816
Locomotives	27	25	27	751	1	187	42	65,216
Heavy-duty vehicles	6	6	6	1,042	4	356	52	444,814
Total	**189**	**174**	**143**	**8,796**	**256**	**2,039**	**475**	**1,253,207**
Change between 2021 and 2022 (percent)								
Ocean-going vessels	-48%	-48%	-49%	-43%	-48%	-40%	-44%	-46%
Harbor craft	-13%	-12%	-13%	-12%	-5%	-11%	-12%	-5%
Cargo handling equipment	-8%	-8%	-8%	-12%	-7%	-14%	-9%	-8%
Locomotives	-3%	-3%	-3%	-5%	-6%	-6%	-3%	-6%
Heavy-duty vehicles	-18%	-17%	-17%	-27%	-6%	0%	-17%	-6%
Total	**-35%**	**-35%**	**-31%**	**-34%**	**-47%**	**-19%**	**-28%**	**-22%**

Comparison of 2022 Emissions by Source Category to 2005

It should be noted that 2005 is the baseline year and this report compares to 2005 in order to track CAAP progress. Several factors contributed to lower emissions in 2022 compared to 2005 and the major highlights by source category include:

- For OGVs, the primary reasons for emission reductions were fewer vessel calls, fuel switching, shore power, Port's Environmental Ship Index (ESI) Incentive Program, Vessel Speed Reduction (VSR) compliance, and newer vessels. In 2022, all engines for OGVs continued to use fuel with 0.1% sulfur or lower and the CARB At-Berth Regulation (i.e., shore power) was also in effect.

- For harbor craft, the emissions in 2022 were lower than 2005 emissions due to the repowers that occurred in the last few years as required by the CARB In-Use Harbor Craft Regulation or funding incentives, removal of older vessels due to attrition, and more efficient operations. There are no CO_2 standards for engines or control measures for harbor craft, therefore, the CO_2e emissions change along with activity trend.

- For CHE, implementation of CAAP measures and CARB's Cargo Handling Equipment Regulation, along with funding incentives, resulted in replacement of older equipment with cleaner units, retrofits, and repowers. The cleaner fleet, combined with efficiency in operations, led to lower emissions. The increased use of hybrid equipment, such as hybrid RTG cranes and straddle carriers, has also helped lower the emissions. The increase in CO_2e reflects the lack of lower emission standards or emission control measures for CO_2 and increased activity. In 2022, more terminal operators started and/or continue using renewable diesel which has a lower carbon intensity than conventional diesel when taking into consideration life cycle analysis. In this report, only tailpipe emissions reductions due to using renewable diesel are accounted in the GHG emissions results.

- For locomotives, the decreases in fleet-wide emissions from line haul locomotives were due to meeting the terms of the memorandum of understanding (MOU) with CARB, and the replacement of older switching locomotives with new low-emission and ultra-low emission switchers.

- For HDV, the 2012 implementation of the final phase of the Port's Clean Truck Program (CTP) resulted in significant turnover of older trucks to newer and cleaner trucks as compared to 2005. More recently, as part of a Port Tariff amendment in 2018, all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer. The share of mileage driven by 2014 and newer model year trucks increased to 64% in 2022 which shows the impact of the Port Tariff on the drayage trucks working at the Port.

Table ES.5 presents the 2022 and 2005 emissions comparison by source category. Despite a 32% increase in TEU throughput in 2022 as compared to 2005, emission reductions occurred in all pollutants for each source category, except for higher CO_2e emissions for OGV, harbor craft, and CHE which resulted in an overall increase in CO_2e emissions. Please note that 2022 emissions are shown as whole numbers in this summary table. The PM and SO_x emissions are displayed with more decimal points in the source category sections.

Table ES.5: Maritime Industry-related 2022-2005 Emissions Comparison by Source Category

	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022								
Ocean-going vessels	66	60	43	3,369	129	360	143	271,236
Harbor craft	13	13	13	498	0	100	25	50,811
Cargo handling equipment	12	11	11	425	2	672	88	170,634
Locomotives	26	24	26	717	1	175	41	61,145
Heavy-duty vehicles	5	5	5	756	4	355	44	420,243
Total	**123**	**113**	**98**	**5,765**	**136**	**1,662**	**341**	**974,069**
2005								
Ocean-going vessels	609	489	449	5,160	4,683	468	215	280,853
Harbor craft	33	32	33	706	4	209	49	44,996
Cargo handling equipment	44	40	43	1,449	9	797	104	134,630
Locomotives	57	53	57	1,712	98	237	89	82,201
Heavy-duty vehicles	248	238	248	6,307	45	1,865	368	474,877
Total	**991**	**851**	**830**	**15,335**	**4,839**	**3,576**	**824**	**1,017,558**
Change between 2005 and 2022 (percent)								
Ocean-going vessels	-89%	-88%	-90%	-35%	-97%	-23%	-33%	-3%
Harbor craft	-60%	-60%	-60%	-29%	-88%	-52%	-48%	13%
Cargo handling equipment	-72%	-72%	-74%	-71%	-80%	-16%	-15%	27%
Locomotives	-54%	-54%	-54%	-58%	-99%	-26%	-54%	-26%
Heavy-duty vehicles	-98%	-98%	-98%	-88%	-91%	-81%	-88%	-12%
Total	**-88%**	**-87%**	**-88%**	**-62%**	**-97%**	**-54%**	**-59%**	**-4%**

Comparison of Emissions Efficiency

Table ES.6 summarizes the annualized emissions efficiencies for all five source categories. The overall emissions efficiency in 2022 improved for all pollutants as compared to 2005 and 2021. In Table ES.6, a positive percentage means an increase in emissions efficiency.

Table ES.6: Emissions Efficiency Metric Comparison, tons/10,000 TEUs

EI Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.124	0.114	0.099	5.82	0.14	1.68	0.34	983
2021	0.177	0.163	0.134	8.24	0.24	1.91	0.45	1,173
2005	1.324	1.138	1.108	20.49	6.46	4.78	1.10	1,360
Previous Year (2021-2022)	**30%**	**30%**	**26%**	**29%**	**42%**	**12%**	**24%**	**16%**
CAAP Progress (2005-2022)	**91%**	**90%**	**91%**	**72%**	**98%**	**65%**	**69%**	**28%**

CAAP Standards and Emission Reduction Progress

One of the main purposes of the annual inventories is to provide a progress update on achieving the San Pedro Bay CAAP Standards. These standards consist of the following emission reduction goals, using the 2005 published inventories as a baseline.

- Emission Reduction Standard:
  - By 2014, reduce emissions by 72% for DPM, 22% for NO_x, and 93% for SO_x
  - By 2023, reduce emissions by 77% for DPM, 59% for NO_x, and 93% for SO_x

- Health Risk Reduction Standard: 85% reduction by 2020

Due to the many emission reduction measures undertaken by the Port, as well as statewide and federal regulations and standards, the 2023 emission reduction standards were met for DPM, NO_x, and SO_x, despite the increase in activity due to the TEU cargo increase (32%). Table ES.7 summarizes DPM, NO_x, and SO_x percent reductions as compared to the 2023 emission reduction standards.

Table ES.7: Reductions as Compared to 2023 Emission Reduction Standards

Pollutant	2022 Actual Reductions	2023 Emission Reduction Standard
DPM	-88%	77%
NO_x	-62%	59%
SO_x	-97%	93%

The emission reduction standards are represented as a percentage reduction of emissions from 2005 levels and are tied to the regional SoCAB attainment dates for the federal $PM_{2.5}$ and ozone ambient air quality standards in the 2007 AQMP. This emissions inventory is used as a tool to track progress in meeting the emission reduction standards.

Figures ES.9 through ES.11 present the 2005 baseline emissions and the year-to-year percent change in emissions with respect to the 2005 baseline emissions. The 2014 and 2023 standards are also provided as a snapshot of progress to-date towards meeting those standards. The pink line in the figures represents the percentage of TEU throughput as compared to 2005 TEU throughput. These figures provide context to the relative correlation between cargo throughput and emissions.

As summarized for Table ES.4 and Section 2 (Regulatory and CAAP Measures), the major factors contributing to the lower emissions over the years for the various pollutants include:

- Fuel Switching for all source categories, but mainly OGV which originally used residual diesel fuel with an average 2.7% sulfur content. OGV switched to marine gas oil (MGO) or marine diesel oil (MDO) fuel with 1% sulfur in 2012 and 0.1% sulfur in 2015, introduction of Tier III vessels. For harbor craft, CHE, HDV, and locomotives, ultra low sulfur diesel (ULSD) has been used since 2006 and 2007 timeframe.

- Various OGV programs and regulations that further reduced emissions are the use of at-berth shore power and the VSR and ESI Incentive programs that occurred in a phased approach.

- CARB Harbor Craft Regulation and funding incentives led to vessel repowers which lowered emissions for harbor craft. There was also vessel attrition over the course of the past 15+ years.

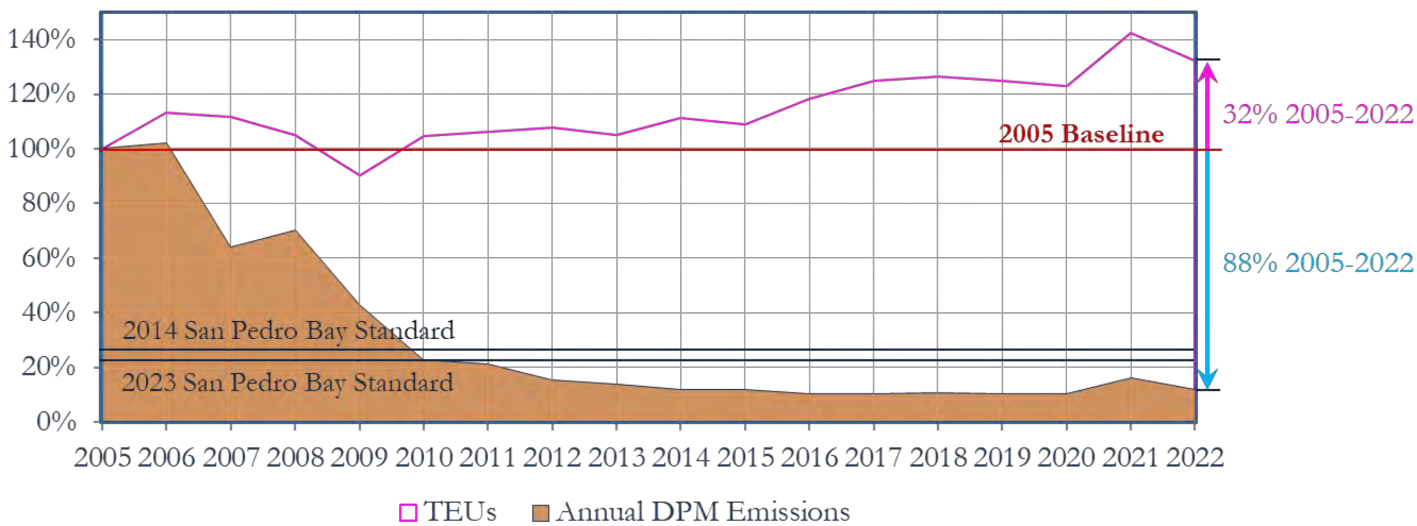
- Cleaner CHE fleet over the years due to CAAP measures and CARB's CHE Regulation which occurred mainly between 2007 and 2015. CARB's Large Spark Ignition (LSI) Regulation impacted the propane forklifts between 2007 and 2010.

- For locomotives, EPA regulations that started in 2010 and phased in through 2015, in addition to CARB's statewide MOU and SPBP CAAP PHL Rail Switch Engine Modernization measure in 2010, decreased the locomotive emissions between 2010 to present.

- For HDV, emission reductions have occurred in a phased approach starting with EPA/CARB emission standards for new 2007+ trucks in 2007 and 2010 and CARB's Drayage Truck Regulation which started in 2009 in a phased approach. The SPBP CAAP phased measures started in 2008 including the 2012 implementation of the final phase of the Port's Clean Truck Program (CTP) which stipulated trucks operating at SPBP must have 2007 or newer engines. Most recently, as part of a Port Tariff amendment in 2018, all new trucks that register in the Ports' Drayage Truck Registry are required to be 2014 model year or newer.

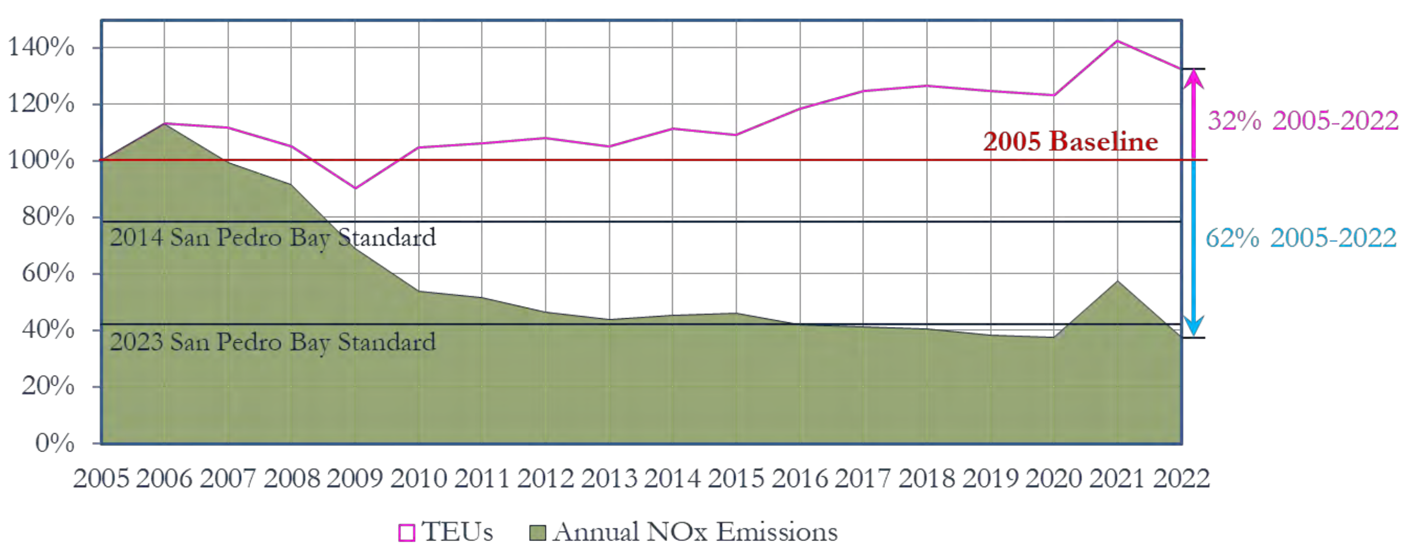
Figure ES.9 shows that the Port surpassed the 2023 DPM emission reduction standard (77%) with an 88% emission reduction in 2022. In 2022, the 0.1% sulfur fuel use requirement for OGVs from the International Maritime Organization (IMO) North American Emission Control Area (ECA) was in effect. Additionally, reductions in DPM were associated with an increase in the number of ships using shore power, due to the CARB At-Berth Regulation and high vessel compliance with the Port's Vessel Speed Reduction program. The TEU throughput was 32% higher in 2022 as compared to 2005.

Figure ES.9: DPM Reductions to Date



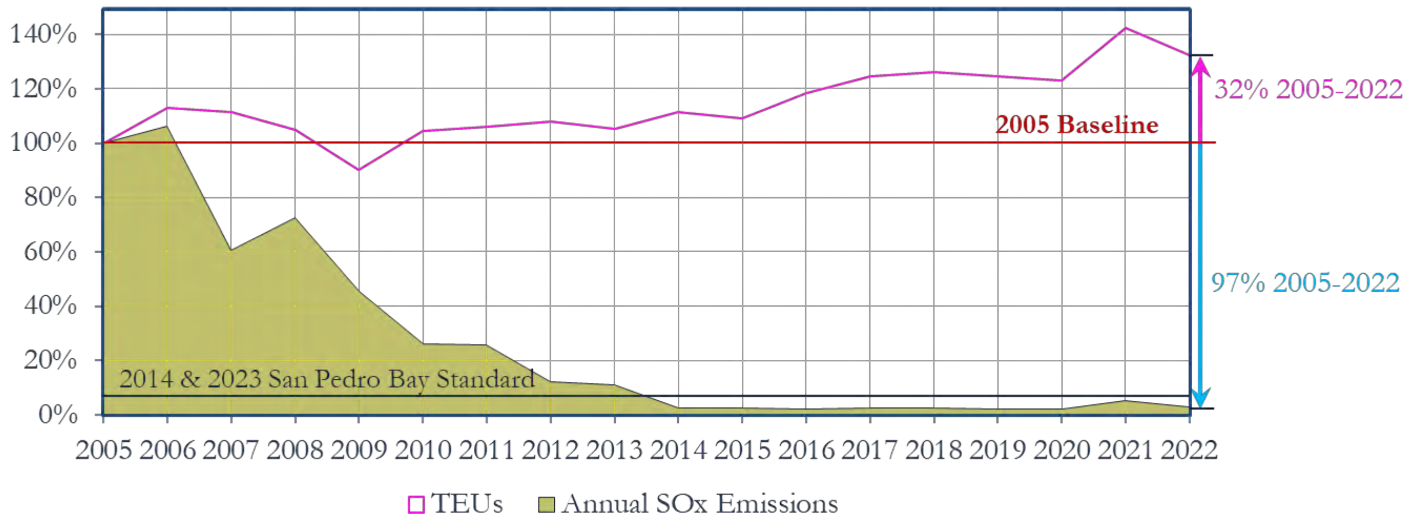
As illustrated in Figure ES.10, the Port met and exceeded the 2023 NO_x mass emission reduction standard (59%) in 2022 with a 62% reduction. Reductions in NO_x were associated with an increase in the number of ships using shore power, due to the CARB At-Berth Regulation, high vessel compliance with the Port's Vessel Speed Reduction program and introduction of Tier III vessels in recent years. The TEU throughput was 32% higher in 2022 as compared to 2005.

Figure ES.10: NO_x Reductions to Date



The Port surpassed the 2023 SO_x mass emission reduction standard (93%) with a 97% reduction in 2022. In 2022, the 0.1% sulfur fuel use requirement for OGVs from the IMO North American ECA and the increase in the number of ships using at-berth shore power, due to the CARB At-Berth Regulation, contributed to the reduction in SO_x. The TEU throughput was 32% higher in 2022 as compared to 2005.

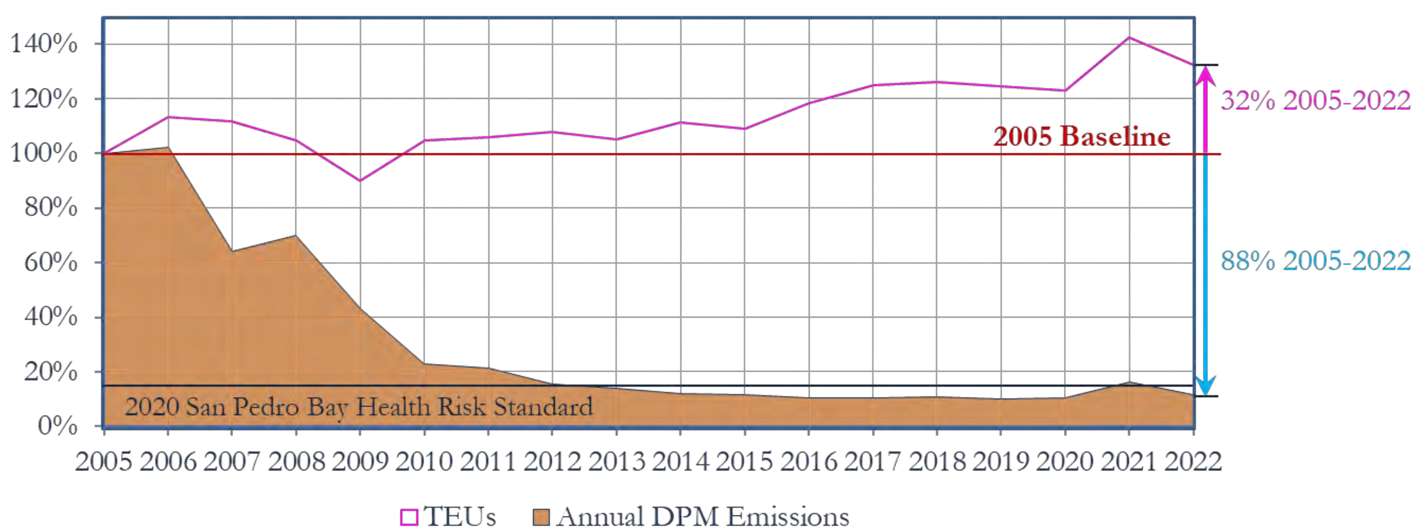
Figure ES.11: SO_x Reductions to Date



Health Risk Reduction Progress

Progress to-date on health risk reduction was determined by comparing the change in DPM mass emissions to the 2005 baseline. Figure ES.12 presents the progress of achieving the standard to date. In 2022, with an 88% reduction, the Port met the 2020 Health Risk Reduction Standard (85%). The TEU throughput was 32% higher in 2022 as compared to 2005.

Figure ES.12: Health Risk Reduction Benefits to Date



SECTION 1 INTRODUCTION

The Port of Los Angeles (Port or POLA) 2022 Inventory of Air Emissions study presents maritime industry-related emission estimates based on 2022 activity levels. The report also includes a comparison of the estimated 2022 emissions with the 2005 baseline year and the previous year emission estimates to track the Port's emission reduction progress under the San Pedro Bay Ports (SPBP) Clean Air Action Plan (CAAP). As in previous inventories, the following five source categories were included:

- Ocean-going vessels (OGV)
- Harbor craft
- Cargo handling equipment (CHE)
- Locomotives
- Heavy-duty vehicles (HDV)

Exhaust emissions of the following pollutants that can cause regional and local air quality impacts were estimated:

- Particulate matter (PM) (10-micron, 2.5-micron)
- Diesel particulate matter (DPM)
- Oxides of nitrogen (NO_x)
- Oxides of sulfur (SO_x)
- Hydrocarbons (HC)
- Carbon monoxide (CO)

This study also includes estimates of the greenhouse gases (GHGs) carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) emitted from maritime industry-related tenant mobile sources. The three individual GHG values were normalized into a single number representing CO_2 equivalents (CO_2e) by multiplying by the following values and summed.[4]

- CO_2 – 1
- CH_4 – 25
- N_2O – 298

For presentation purposes in the report, only CO_2e values were reported because they include all three GHGs in an equivalent measure to CO_2, which makes up by far the greatest mass of GHG emissions from the source categories included in this inventory. The greenhouse gas emissions are presented in metric tons (tonnes), while the criteria pollutant emissions are shown in tons.

[4] EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019*, EPA 430-R-21-005, published 2021.

Geographical Domain

The geographical extent of the inventory includes emissions from the aforementioned maritime industry-related emission sources operating within the harbor district. For rail locomotives and on-road trucks, the domain extends from the Port to the cargo's first point of rest within the South Coast Air Basin (SoCAB) or up to the SoCAB boundary, whichever comes first.

For commercial marine vessels, the domain or overwater boundary includes the berths and waterways in the Port proper and all vessel movements within the 40-nautical mile (nm) arc from Point Fermin as shown in Figure 1.1. The northern boundary is the Ventura County line, and the southern boundary is the Orange County line. It should be noted that although the overwater boundary for the South Coast air quality modeling domain extends further off the coast, most of the vessel movements occur within the 40 nm arc. Vessels that pass through the domain, but do not call on the Port are excluded from the inventory.

The Hawaiian, western and southern routes extend beyond the 40 nm arc into the outer part of the South Coast air quality modeling domain. For the western and southern routes, this emissions inventory covers the majority of the emissions as most of the vessel movements occur within the 40-nm arc. For the Hawaiian route, this emissions inventory includes the additional SoCAB over-water boundary emissions that extends past the 40 nm mile arc.

Figure 1.1: Emissions Inventory Geographical Extent

Figure 1.2 shows the location of the anchorage areas for San Pedro Bay Ports. The orange shading shows the POLA terminals. The green areas are the known anchorage areas. Vessel emissions at anchorage are included in the air emissions inventory report as part of the OGV emissions. The precautionary area, labeled as precautionary zone, is an area where ships must navigate with particular caution. The northern and southern shipping lanes are Separation Zone to separate opposing traffic lanes by 1 to 2 miles wide within each sector.

Figure 1.2: Anchorage Areas

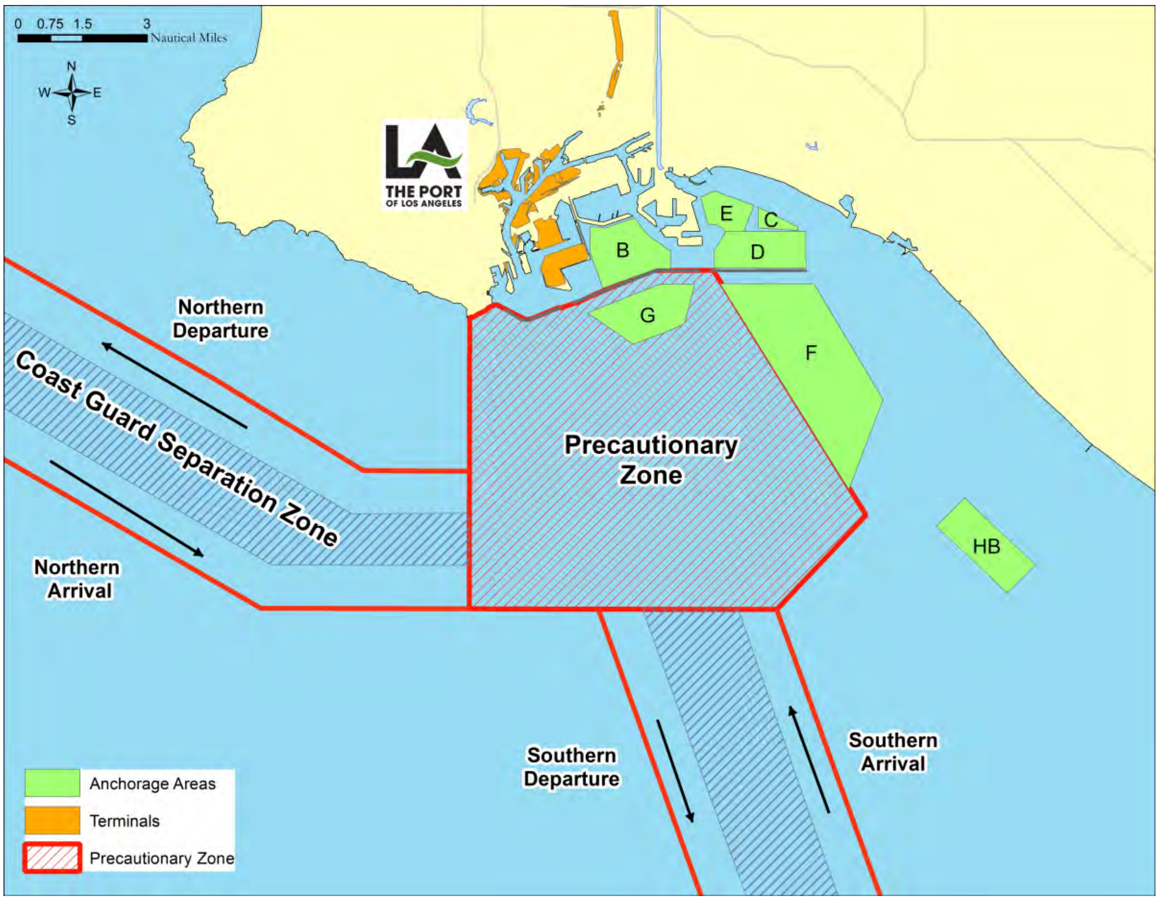
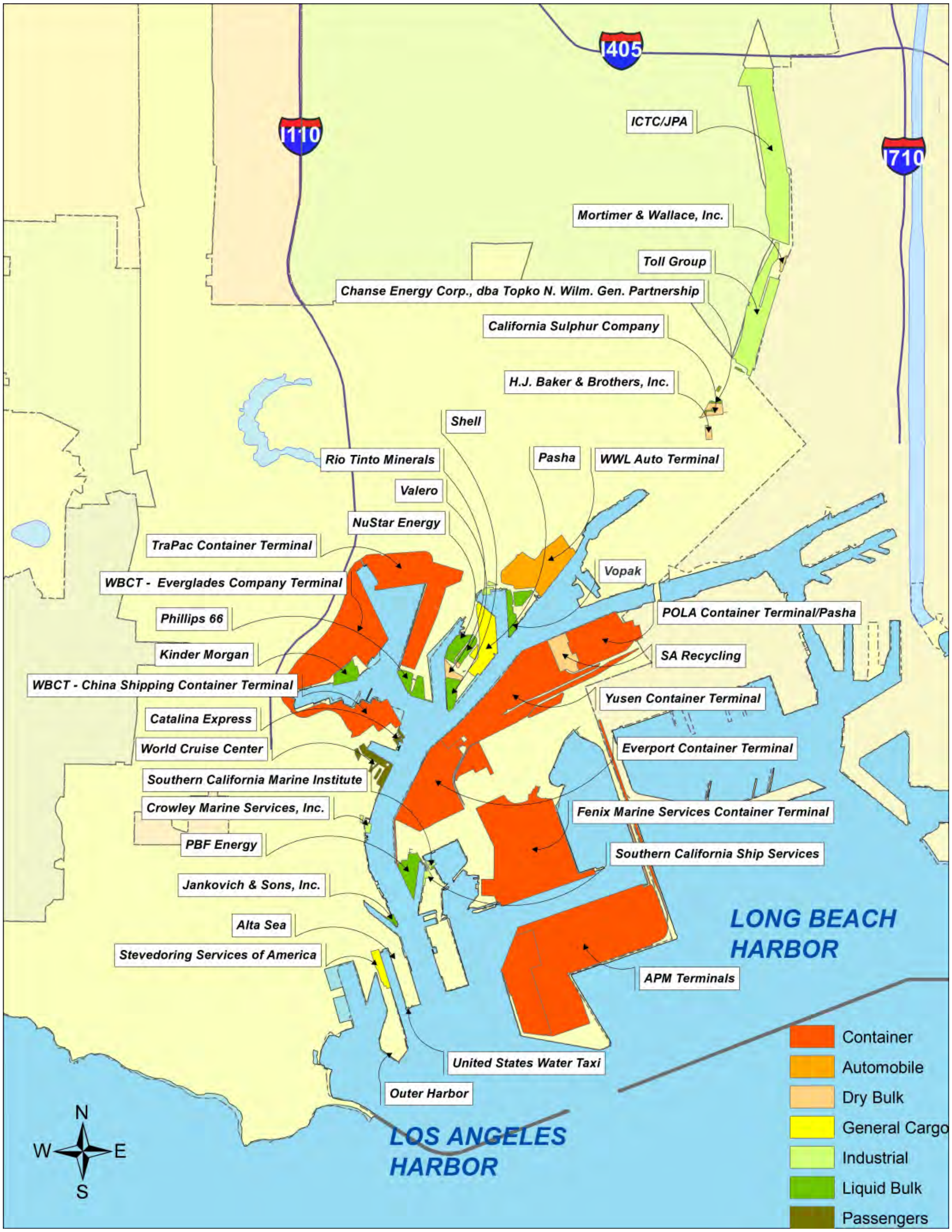


Figure 1.3 shows the land area of active Port terminals in 2022. The geographical scope for cargo handling equipment is the terminals and facilities on which they operate.

Figure 1.3: Port Boundary Area of Study



SECTION 2 REGULATORY AND CAAP MEASURES

This section summarizes the regulatory initiatives and Port measures related to port activity. Almost all maritime industry-related emissions come from five emission source categories: OGVs, harbor craft, CHE, locomotives, and HDVs. The responsibility for the regulation of emissions from the majority of these sources falls under the jurisdiction of local (South Coast Air Quality Management District [South Coast AQMD]), state (California Air Resources Board [CARB]), or federal (U.S. Environmental Protection Agency [EPA]) agencies.

CAAP Strategies

At the end of 2017, the ports of Los Angeles and Long Beach (Ports) released the final CAAP 2017 Update.[5] The CAAP 2017 Update contains new strategies for all sources that move cargo through the ports, including the deployment of zero and near-zero emission trucks and cargo handling equipment and the expansion of programs that reduce ship emissions. The focus of the Update is to work in collaboration with industry stakeholders, regulatory agencies, local communities, and environmental groups for the next 20 years to reduce emissions and combat climate change. The CAAP 2017 strategies that will affect future emission reductions for the Ports include:

- Advancing the Clean Trucks Program to phase out older trucks and transition to near-zero emissions in the early years and zero-emissions by 2035. Under this program, on March 2020, the Boards of Harbor Commissioners of the City of Los Angeles and the City of Long Beach approved a resolution to collect a Clean Truck Fund (CTF) Rate of $10 per loaded TEU moved by trucks in and out of port terminals. On November 4, 2021, the Los Angeles Board of Harbor Commissioners approved the CTF rate tariff. Zero-emission trucks are exempt from the rate throughout the duration of the program. Low NO_x trucks that are registered in the Port Drayage Truck Registry (PDTR) and placed into service by the end of 2022 at the Port of Los Angeles will receive an exemption through December 31, 2027. Collection of the CTF rate began on April 1, 2022. The Clean Truck Fund rates provide funds to incentivize the transition to near-zero and zero-emission trucks through a Truck Voucher Incentive Program and Infrastructure Funding Program.
- Requiring terminal operators to purchase zero-emissions equipment, if feasible, or near-zero or cleanest technology available when procuring new equipment. Submitting grant applications on behalf of the tenants to support their efforts.
- Further reducing emissions from ships at-berth, and transitioning the oldest, most polluting ships out of the San Pedro Bay fleet.
- Accelerating the deployment of cleaner engines and operational strategies to reduce harbor craft emissions.
- Expanding the use of on-dock rail to shift more cargo leaving the port to go by rail.

[5] CAAP, *https://cleanairactionplan.org/2017-clean-air-action-plan-update/*

San Pedro Bay Emissions Reduction Standards

The 2017 CAAP Update did not alter the 2010 CAAP Update goals that set health risk and emission reduction standards but did incorporate two new emission targets to reduce GHGs from port-related sources as described below.

Health Risk Reduction Standard

To complement the CARB's Air Pollution Reduction Programs, including the Diesel Risk Reduction Plan, the Ports developed the following standard for reducing overall maritime industry-related health risk impacts, relative to 2005 emission levels:

- By 2020, reduce the population-weighted cancer risk of maritime industry-related DPM emissions by 85% in highly impacted communities located proximate to Port sources and throughout the residential areas in the Port region.

Emission Reduction Standard

The Ports developed the following standards for reducing air pollutant emissions from maritime industry-related activities, relative to 2005 emission levels:

- By 2023, reduce emissions of NO_x by 59%, SO_x by 93%, and DPM by 77% to support attainment of the federal 8-hour ozone standards and NAAQS fine particulate matter ($PM_{2.5}$) standards.

2017 CAAP Update New Emission Reduction Targets

- Reduce GHGs from port-related sources to 40% below 1990 levels by 2030
- Reduce GHGs from port-related sources to 80% below 1990 levels by 2050

Regulatory Programs by Source Category

The following section presents a list of currently adopted regulatory programs and CAAP measures by each major source category that influenced the progress towards the SPBP emission reduction targets from the maritime industry in and around the Port.

Table 2.1: OGV Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
International Maritime Organization (IMO)	NO_x Emission Standard for Marine Engines[6]	NO_x	2011 – Tier II 2016 – Tier III for ECA only	Auxiliary and propulsion engines over 130 kW output power on newly built vessels
IMO	Emissions Control Area, Low Sulfur Fuel Requirements for Marine Engines[7]	DPM, PM, and SO_x	2012 ECA – 1% Sulfur 2015 ECA – 0.1% Sulfur	Significantly reduce emissions due to low sulfur content in fuel by creating Emissions Control Area (ECA)
IMO	Initial IMO Strategy on reduction of GHG emissions from ships – Resolution MEPC.304(72)[8]	GHG	2050 – 50%	Initial IMO Strategy on reduction of GHG emissions from ships by 50% in 2050 from 2008 level. Goal is to phase out GHG
IMO	Energy Efficiency Design Index (EEDI) for International Shipping[9]	CO_2 and other pollutants	2013	Increases the design efficiencies of ships relating to energy and emissions

[6] IMO, *www.imo.org/en/OurWork/Environment/Pages/Nitrogen-oxides-(NOx)-%E2%80%93-Regulation-13.aspx*
[7] IMO, *www.imo.org/en/OurWork/Environment/Pages/Sulphur-oxides-(SOx)-%E2%80%93-Regulation-14.aspx*
[8] IMO, *www.unfccc.int/sites/default/files/resource/250_IMO%20submission_Talanoa%20Dialogue_April%202018.pdf*
[9] IMO, *www.imo.org/en/OurWork/Environment/Pages/Improving%20the%20energy%20efficiency%20of%20ships.aspx*

Table 2.1: OGV Emission Regulations, Standards and Policies (cont'd)

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for Marine Diesel Engines above 30 Liters per Cylinder (Category 3 Engines); Aligns with IMO Annex VI marine engine NO_x standards and low sulfur requirement[10]	DPM, PM, NO_x, and SO_x	2011 – Tier 2 2016 – Tier 3	Auxiliary and propulsion category 3 engines on US flagged new built vessels and requires use of low sulfur fuel
CARB	Regulation to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels While At-Berth at a California Port[11]	DPM, PM, NO_x, SO_x, CO_2	2014 – 50% 2017 – 70% 2020 – 80%	Shore power (or equivalent) requirements. Vessel operators based on fleet percentage visiting the ports.
CARB	New 2020 At-Berth Regulation[12]	All	2023 – 100% container, reefer, and cruise 2025 – Ro-Ro and LALB tankers	All container, reefer, cruise, Ro-Ro, and tanker vessel and regulated terminal operator will have to meet the requirements
CARB	Ocean-going Ship Onboard Incineration[13]	DPM, PM, and HC	2007	All vessels cannot incinerate within 3 nm of the California coast
CAAP	CAAP Measure – OGV 1 Vessel Speed Reduction (VSR) Program[14]	All	2008	Vessel operators within 20 nm and 40 nm of Point Fermin
CAAP	CAAP Measure – OGV 2 Reduction of At-Berth OGV Emissions[15]	All	2014	Vessel operators and terminals
CAAP	CAAP Measure – OGV 5 and 6 Cleaner OGV Engines and OGV Engine Emissions Reduction Technology Improvements and Environmental Ship Index (ESI) Program[16]	DPM, PM, and NO_x	2012	Vessel operators who choose to participate in ESI and/or technology demonstrations.

[10] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression*
[11] CARB, *www.arb.ca.gov/regact/2007/shorepwr07/shorepwr07.htm,* and *www.arb.ca.gov/ports/shorepower/forms/regulatoryadvisory/regulatoryadvisory12232013.pdf*
[12] CARB, *ww2.arb.ca.gov/our-work/programs/ocean-going-vessels-berth-regulation*
[13] CARB, *www.arb.ca.gov/ports/shipincin/shipincin.htm*
[14] CAAP, *www.cleanairactionplan.org/strategies/ships/*
[15] CAAP, *www.portoflosangeles.org/environment/ogv.asp*
[16] CAAP, *www.cleanairactionplan.org/strategies/ships/*

Table 2.2: Harbor Craft Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for Harbor Craft Engines[17]	All	2009 – Tier 3 2014 – Tier 4 for 800 hp or greater	Commercial marine diesel engines with displacement less than 30 liters per cylinder
CARB	Low Sulfur Fuel Requirement for Harbor Craft[18]	DPM, PM, NO_x, and SO_x	2006 – 15 ppm in SCAQMD area	Use of low sulfur diesel fuel in commercial harbor craft operating in SCAQMD
CARB	Regulation to Reduce Emissions from Diesel Engines on Commercial Harbor Craft[19]	DPM, PM, and NO_x	2009 to 2020 - schedule varies depending on engine model year	Most harbor craft with home port in SCAQMD must meet more stringent emissions limits according to a compliance schedule
CARB	2022 Commercial Harbor Craft Regulation Amendments[20]	All	2023 to 2032 – schedule varies on engine MY and vessel type	New requirements for harbor craft in a phased approach. Renewable diesel from Jan 2023 on.
CAAP	CAAP Measure – HC 1 Performance Standards for Harbor Craft[21]	All	Varies	Modernization of harbor craft operating at POLA upon lease renewal

[17] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/domestic-regulations-emissions-marine-compression*
[18] CARB, *www.arb.ca.gov/regact/carblohc/carblohc.htm*
[19] CARB, *www.arb.ca.gov/regact/2010/chc10/chc10.htm*
[20] CARB, *www.arb.ca.gov/our-work/programs/commercial-harbor-craft*
[21] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*

Table 2.3: Cargo Handling Equipment Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for Non-Road Diesel Powered Equipment[22]	All	2008 through 2015	All non-road equipment
CARB	Cargo Handling Equipment Regulation[23]	All	2007 through 2017; Opacity test compliance starting in 2016	All Cargo handling equipment
CARB	New Emission Standards, Test Procedures, for Large Spark Ignition (LSI) Engine Forklifts and Other Industrial Equipment[24]	All	2007 – first phase 2010 – second phase	Emission standards for large spark-ignition engines with 25 hp or greater
CARB	Fleet Requirements for Large Spark Ignition Engines[25]	All	2009 through 2013	More stringent emissions requirements for fleets of large spark-ignition engines equipment
CAAP	CAAP Measure – CHE1 Performance Standards for CHE[26]	All	2007 through 2014	Turnover to Tier 4 cargo handling equipment per lease renewal agreement
CAAP	CAAP Measure – Transition to Cleaner Equipment[27]	All	2020 through 2030	Turnover to zero emissions CHE, if feasible, or near zero emissions or cleanest available if ZE/NZE not yest feasible

[22] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-nonroad-vehicles-and-engines*
[23] CARB, *www.arb.ca.gov/regact/2011/cargo11/cargo11.htm*
[24] CARB, *www.arb.ca.gov/regact/2008/lsi2008/lsi2008.htm*
[25] CARB, *www.arb.ca.gov/regact/2010/offroadlsi10/lsifinalreg.pdf*
[26] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*
[27] CAAP, *www.cleanairactionplan.org/about-the-plan/*

Table 2.4: Locomotives Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
EPA	Emission Standards for New and Remanufactured Locomotives and Locomotive Engines- Latest Regulation[28]	DPM and NO_x	2011 through 2013 – Tier 3 2015 – Tier 4	All new and remanufactured locomotive engines
EPA	Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel[29]	SO_x and PM	2010	All locomotive engines
CARB	Low Sulfur Fuel Requirement for Intrastate Locomotives[30]	SO_x, NO_x, and PM	2007	Intrastate locomotives, mainly switchers
CARB	Statewide 1998 and 2005 Memorandum of Understanding (MOUs)[31]	NO_x	2010	Union Pacific and BNSF locomotives
CAAP	CAAP Measure – RL1 Pacific Harbor Line (PHL) Rail Switch Engine Modernization[32]	PM	2010	Pacific Harbor Line switcher engines
CAAP	CAAP Measure – RL2 Class 1 Line-haul and Switcher Fleet Modernization[33]	All	2023 – Tier 3	Class 1 locomotives at ports
CAAP	CAAP Measure – RL3 New and Redeveloped Near-Dock Rail Yards[34]	All	2020 – Tier 4	New near-dock rail yards

[28] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-locomotives*
[29] EPA, *www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-nonroad-vehicles-and-engines*
[30] CARB, *www.arb.ca.gov/msprog/offroad/loco/loco.htm#intrastate*
[31] CARB, *www.arb.ca.gov/msprog/offroad/loco/loco.htm#intrastate*
[32] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*
[33] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*
[34] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*

Table 2.5: Heavy-Duty Vehicles Emission Regulations, Standards and Policies

Agency	Regulation/Standard/Policy	Targeted Pollutants	Years Effective	Impact
CARB/ EPA	Emission Standards for New 2007+ On-Road Heavy-Duty Vehicles[35]	NO_x and PM	2007 2010	All new on-road diesel heavy-duty vehicles
CARB	Heavy-Duty Vehicle On-Board Diagnostics (OBD and OBDII) Requirement[36]	NO_x and PM	2010 +	All new on-road heavy-duty vehicles
CARB	ULSD Fuel Requirement[37]	All	2006 - ULSD	All on-road heavy-duty vehicles
CARB	Drayage Truck and Bus Regulation (amended in 2011 and 2014)[38]	All	Phase-in started in 2009	All drayage trucks operating at California ports
CARB	Low NO_x Software Upgrade Program 2007[39]	NO_x	Starting 2005	1993 to 1998 on-road heavy-duty vehicles that operate in California
CARB	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation[40]	CO_2	Phase 1 started in 2012	Heavy-duty tractors that pull 53-foot+ trailers in California
CARB	Assembly Bill 32 requiring GHG reductions targets and Governor's Executive Order B – 30-15[41]	CO_2	GHG emissions reduction goals in 2020	All operations in California
CAAP	CAAP Measure – HDV1 Performance Standards for On-Road Heavy-Duty Vehicles; Clean Truck Program[42]	All	Phase-in started in 2008	Requires on-road heavy-duty vehicles that operate at POLA to have 2007 or newer Model Year (MY) engines by 2012
CAAP	CAAP Measure – Clean Truck Fund Rate[43]	NO_x	2022	Rate collection for trucks; low NOx and ZE trucks exempt

[35] CARB, *ww2.arb.ca.gov/road-heavy-duty-regulations-certification-programs*
[36] CARB, *www.arb.ca.gov/our-work/programs/obd*
[37] CARB, *www.arb.ca.gov/regact/ulsd2003/ulsd2003.htm*
[38] CARB, *www.arb.ca.gov/msprog/onroad/porttruck/drayagevtruckbus.pdf*
[39] CARB, *ww2.arb.ca.gov/road-heavy-duty-regulations-certification-programs*
[40] CARB, *www.arb.ca.gov/our-work/programs/ghg-std-md-hd-eng-veh*
[41] CARB, *www.arb.ca.gov/cc/ab32/ab32.htm*
[42] CAAP, *www.portoflosangeles.org/environment/air-quality/san-pedro-bay-ports-clean-air-action-plan*
[43] CAAP, *www.cleanairactionplan.org/strategies/trucks/*

SECTION 3 OCEAN-GOING VESSELS

Source Description

Based on activity data obtained from the Marine Exchange of Southern California, there was a total of 1,563 ocean-going vessels (OGVs, ships, or vessels) arrival calls to the Port in 2022. These vessels were grouped by the type of cargo they are designed to carry and fall into one of the following vessel categories or types:

- Auto carrier
- Bulk carrier
- Containership
- Cruise vessel
- General cargo
- Miscellaneous vessel
- Refrigerated vessel (Reefer)
- Tanker

From an emissions contribution perspective, the three predominant vessel types are: containerships, tankers, and cruise ships, with containerships being the most significant vessel category. Emission sources on all vessel categories include main engines (propulsion), auxiliary engines (generators), and auxiliary boilers (boilers).

Table 3.1 presents the numbers of arrivals, departures, and shifts associated with vessels at the Port in 2022. An arrival is from sea to a berth or an anchorage (prior to shifting to a berth). A departure is from berth to sea.

Table 3.1: 2022 Total OGV Activities

Vessel Type	Arrival	Departure	Shift	Total
Auto Carrier	88	91	6	185
Bulk	72	75	221	368
Bulk - Heavy Load	1	1	0	2
Container - 1000	31	31	22	84
Container - 2000	34	35	21	90
Container - 3000	5	5	2	12
Container - 4000	188	194	66	448
Container - 5000	77	80	62	219
Container - 6000	60	62	28	150
Container - 7000	20	20	2	42
Container - 8000	164	164	28	356
Container - 9000	47	46	14	107
Container - 10000	27	30	7	64
Container - 11000	74	76	11	161
Container - 12000	34	35	3	72
Container - 13000	47	49	26	122
Container - 14000	46	48	11	105
Container - 15000	15	17	6	38
Container - 16000	5	6	3	14
Container - 19000	1	0	0	1
Cruise	289	293	45	627
General Cargo	38	37	75	150
Miscellaneous	1	1	1	3
Reefer	28	28	52	108
Tanker - Chemical	106	122	240	468
Tanker - Handysize	43	45	105	193
Tanker - Panamax	21	27	49	97
Tanker - Aframax	1	1	1	3
Total	**1,563**	**1,619**	**1,107**	**4,289**

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Geographical Domain

The geographical domain or overwater boundary for OGVs includes the berths and waterways in the Port proper and all vessel movements within the 40-nautical mile (nm) arc from Point Fermin as shown previously in Figure 1.1. The northern boundary is the Ventura County line, and the southern boundary is the Orange County line. It should be noted that although the overwater boundary for the South Coast air quality modeling domain extends further off the coast, most of the vessel movements occur within the 40 nm arc. Vessels that pass through the domain, but do not call on the Port are excluded from the inventory.

The Hawaiian, western and southern routes extend beyond the 40 nm arc into outer part of the South Coast air quality modeling domain. For the western and southern routes, this emissions inventory covers the majority of the emissions as most of the vessel movements occur within the 40-nm arc. For the Hawaiian route, this emissions inventory includes the additional SoCAB over-water boundary emissions that extends past the 40 nm mile arc.

Data and Information Acquisition

Various sources of data and operational knowledge about the Port's marine activities were used to compile the data necessary to estimate emissions from OGVs:

- Marine Exchange of Southern California (SoCal MarEx)
- Vessel Speed Reduction Program speed data
- Los Angeles Pilot Service
- IHS Markit Maritime data[44]
- Vessel Boarding Program (VBP) data
- Environmental Ship Index (ESI) fuel and engine data[45]
- Port Wharfinger data, including tanker load and discharge activity data
- Port and terminal shore power activity data, including usage of alternative at-berth emission control technologies (METS-1)
- Automatic Identification System (AIS) data provided by Marine Exchange of Alaska

The maximum speed from IHS Markit Maritime data was used and if not available, service speed (most populated speed field) was used. The alternative at-berth emission control technology used in 2022 was the Maritime Emissions Treatment System (METS).

Operational Profiles

Auxiliary engines provide the electricity for equipment used in the operation of ocean-going vessels. Actual VBP data, if available, were used to estimate emissions from auxiliary engines. For berth hotelling emissions, the actual shore power records were used if the vessel connected to shore power. If actual VBP data or shore power data is not available, default values were used.

[44] IHS, *www.ihsmarkit.com/products/maritime-world-ship-register.html*
[45] IAPH, WPSP, *www.sustainableworldports.org/environmental-ship-index-esi/*

Table 3.2 presents the auxiliary engine load defaults by vessel type and by mode, used in the emissions calculations. These default values were produced by calculating the call-weighted average of the VBP data points for each vessel type and mode of operation. For vessel types with no VBP data available, a suitable default was estimated by interpolating VBP data from the closest containership size class.

Table 3.2: Average Auxiliary Engine Load Defaults, kW

Vessel Type	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
Auto Carrier	527	839	803	494
Bulk	222	235	544	250
Bulk - Heavy Load	255	675	150	253
Container - 1000	913	1,106	571	1,000
Container - 2000	1,287	1,887	694	528
Container - 3000	920	1,673	758	559
Container - 4000	1,419	2,526	1,073	1,056
Container - 5000	1,594	2,504	1,047	900
Container - 6000	1,558	2,477	1,083	1,266
Container - 7000	1,580	2,530	1,024	826
Container - 8000	1,635	2,519	1,161	1,052
Container - 9000	1,634	3,335	1,071	1,174
Container - 10000	1,634	2,003	1,130	1,181
Container - 11000	1,771	2,429	991	1,134
Container - 12000	1,661	2,146	1,216	1,212
Container - 13000	1,589	2,136	1,346	1,319
Container - 14000	1,553	2,042	1,152	1,155
Container - 15000	1,850	2,200	850	1,100
Container - 16000	1,793	2,179	1,150	1,271
Container - 19000	1,950	2,275	1,350	1,475
General Cargo	489	1,273	826	180
Miscellaneous	284	379	230	233
Reefer	1,416	1,231	1,067	1,427
Tanker - Chemical	498	598	1,209	415
Tanker - Handysize	659	682	1,055	560
Tanker - Panamax	485	550	884	401
Tanker - Aframax	448	565	833	417

Table 3.3 lists the auxiliary engine defaults for all cruise ships (diesel electric and non-diesel electric) engaged in passenger service at the Port in 2022. These auxiliary engine defaults values were produced by calculating the call-weighted average of VBP data by mode of operation for each cruise vessel size group up to 4,000 passengers. For vessels larger than 4,000 passengers, the defaults were scaled up to reflect the operations of larger size vessels. Normal cruise ship operations were underway for the full 2022 calendar year.

Table 3.3: Cruise Ship Average Auxiliary Engine Load Defaults, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<1,500	3,994	5,268	3,069	2,289
1,500 < 2,000	7,000	9,000	5,613	na
2,000 < 2,500	11,000	11,350	6,900	na
2,500 < 3,000	9,781	8,309	6,089	5,916
3,000 < 3,500	8,292	10,369	8,292	7,475
3,500 < 4,000	9,945	11,411	10,445	10,191
4,000 < 4,500	12,500	14,000	12,000	9,900
4,500 < 5,000	13,000	14,500	13,000	na

Table 3.4 presents the load defaults for the auxiliary boilers for diesel electric cruise ships. The default averages presented factor in if a vessel reported that they do not use their auxiliary boiler in a certain mode.

Table 3.4: Cruise Ship Auxiliary Boiler Load Defaults by Mode, kW

Passenger Range	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
<1,500	992	784	867	766
1,500 < 2,000	1,070	1,145	1,951	976
2,000 < 2,500	1,382	1,773	3,005	1,506
2,500 < 3,000	596	602	895	431
3,000 < 3,500	697	1,199	1,984	1,068
3,500 < 4,000	401	347	989	868
4,000 < 4,500	0	0	503	503
4,500 < 5,000	0	0	503	503
Non- diesel electric	282	361	612	306

Table 3.5 presents the load defaults for the auxiliary boilers by vessel type and by mode. These default values were produced by calculating the call-weighted average of VBP data points. Since loading and discharging data were available for the tankers that visited the Port, a lower boiler load of 875 kW was used for tankers known to be loading cargo while at berth, while the higher boiler load listed in the table was used as a default for the tanker calls that were discharging cargo.

Table 3.5: Auxiliary Boiler Load Defaults by Mode, kW

Vessel Type	Transit	Maneuvering	Berth Hotelling	Anchorage Hotelling
Auto Carrier	82	159	269	259
Bulk	63	154	184	184
Bulk - Heavy Load	35	94	125	125
Container - 1000	90	181	437	230
Container - 2000	188	359	444	441
Container - 3000	203	408	552	517
Container - 4000	180	351	457	453
Container - 5000	266	496	606	601
Container - 6000	248	471	616	612
Container - 7000	345	549	596	594
Container - 8000	210	446	561	588
Container - 9000	448	559	737	722
Container - 10000	368	473	656	656
Container - 11000	187	309	452	452
Container - 12000	108	236	374	374
Container - 13000	241	306	559	558
Container - 14000	266	481	402	532
Container - 15000	259	395	402	402
Container - 16000	206	290	470	470
Container - 19000	355	581	783	783
General Cargo	77	177	227	227
Miscellaneous	54	85	144	144
Reefer	89	171	234	234
Tanker - Chemical	90	135	316	203
Tanker - Handysize	143	285	3,064	321
Tanker - Panamax	223	330	4,197	512
Tanker - Aframax	179	144	6,226	507

Hotelling

Table 3.6 summarizes the hotelling times in hours at berth. Hotelling time is the entire duration of time that a ship spends at berth for each visit.

Table 3.6: 2022 Hotelling Times at Berth, hours

Vessel Type	Min Hours	Max Hours	Avg Hours	Avg Days
Auto Carrier	6.9	42.6	14.3	0.6
Bulk	3.1	487.6	91.6	3.8
Bulk - Heavy Load	7.1	7.1	7.1	0.3
Container - 1000	14.6	93.5	37.0	1.5
Container - 2000	14.0	268.1	45.7	1.9
Container - 3000	72.0	102.0	87.6	3.6
Container - 4000	9.9	282.3	76.9	3.2
Container - 5000	10.0	754.7	81.9	3.4
Container - 6000	13.2	165.8	84.6	3.5
Container - 7000	27.4	223.4	90.2	3.8
Container - 8000	6.7	324.9	133.8	5.6
Container - 9000	8.1	334.1	141.8	5.9
Container - 10000	12.1	347.3	161.9	6.7
Container - 11000	10.7	476.3	157.4	6.6
Container - 12000	22.5	401.7	155.7	6.5
Container - 13000	11.6	287.2	153.6	6.4
Container - 14000	35.5	296.3	186.4	7.8
Container - 15000	37.0	255.0	170.2	7.1
Container - 16000	177.3	275.1	233.3	9.7
Container - 19000	118.7	118.7	118.7	4.9
Cruise	4.2	176.8	17.0	0.7
General Cargo	13.7	152.4	60.1	2.5
Miscellaneous	46.8	46.8	46.8	2.0
Reefer	4.3	117.6	36.0	1.5
Tanker - Chemical	9.1	121.5	33.8	1.4
Tanker - Handysize	12.5	73.7	37.2	1.5
Tanker - Panamax	16.3	78.8	42.9	1.8
Tanker - Aframax	49.5	49.5	49.5	2.1

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Table 3.7 summarizes the hotelling times in hours spent at anchorage. In 2022, there were 42% less vessels at anchorage than in 2021, and thus less overall time spent at anchorage due to fewer vessels.

Table 3.7: 2022 Hotelling Times at Anchorage, hours

Vessel Type	Min Hours	Max Hours	Avg Hours	Avg Days	Vessel Count
Auto Carrier	10.3	36.7	25.4	1.1	3
Bulk	1.3	1,559.3	164.0	6.8	66
Bulk - Heavy Load	0.0	0.0	0.0	0.0	0
Container - 1000	5.0	189.6	54.3	2.3	11
Container - 2000	5.5	195.6	55.4	2.3	8
Container - 3000	16.3	29.5	22.9	1.0	2
Container - 4000	0.8	285.9	45.1	1.9	23
Container - 5000	0.2	146.9	40.2	1.7	17
Container - 6000	1.6	281.1	59.3	2.5	12
Container - 7000	10.6	24.3	17.5	0.7	1
Container - 8000	1.9	39.4	15.0	0.6	11
Container - 9000	3.3	79.4	43.3	1.8	5
Container - 10000	16.2	50.0	31.9	1.3	3
Container - 11000	5.9	185.8	54.5	2.3	7
Container - 12000	7.5	12.0	9.8	0.4	1
Container - 13000	3.7	191.9	45.0	1.9	7
Container - 14000	1.0	45.4	19.7	0.8	5
Container - 15000	5.5	23.4	13.2	0.6	2
Container - 16000	16.3	25.3	20.8	0.9	2
Container - 19000	0.0	0.0	0.0	0.0	0
Cruise	3.5	236.2	97.7	4.1	9
General Cargo	0.1	823.3	105.9	4.4	31
Miscellaneous	42.08	42.08	42.08	1.8	1
Reefer	1.9	1,069.2	111.8	4.7	11
Tanker - Chemical	0.3	456.9	43.6	1.8	85
Tanker - Handysize	1.0	409.3	77.5	3.2	13
Tanker - Panamax	2.1	290.6	38.8	1.6	21
Tanker - Aframax	67.8	67.8	67.8	2.8	1
Total					**358**

DB ID705

Frequent Callers

Table 3.8 provides the percentage of frequent callers. For this EI, a frequent caller was defined as a vessel that made six or more calls in one calendar year. Table 3.8 shows that only 8% of vessels that called the Port in 2022 were frequent callers with six or more calls.

Table 3.8: 2022 Percentage of Frequent Callers

Vessel Type	Frequent Vessels	Total Vessels	Percent Frequent Vessels
Auto Carrier	2	53	4%
Bulk	0	79	0%
Bulk - Heavy Load	0	1	0%
Container - 1000	0	13	0%
Container - 2000	2	15	13%
Container - 3000	0	4	0%
Container - 4000	10	66	15%
Container - 5000	4	30	13%
Container - 6000	5	24	21%
Container - 7000	2	7	29%
Container - 8000	6	59	10%
Container - 9000	1	22	5%
Container - 10000	0	15	0%
Container - 11000	1	34	3%
Container - 12000	3	11	27%
Container - 13000	0	23	0%
Container - 14000	0	21	0%
Container - 15000	0	8	0%
Container - 16000	0	3	0%
Container - 19000	0	1	0%
Cruise	14	34	41%
General Cargo	0	36	0%
Miscellaneous	0	1	0%
Reefer	0	19	0%
Tanker - Chemical	1	105	1%
Tanker - Handysize	3	13	23%
Tanker - Panamax	0	21	0%
Tanker - Aframax	0	1	0%
Total	**54**	**719**	
Average			**8%**

Vessel Characteristics

Averages by vessel type characteristics for the fleet calling the Port were based on the IHS Maritime World Register of Ships and are summarized in Table 3.9. Vessel type characteristics include averages of year built, deadweight, maximum rated speed, and main and auxiliary installed engine power ratings for the specific vessels that called the Port in 2022.

Table 3.9: 2022 Vessel Type Characteristics

Vessel Type	Average Year Built	Age (Years)	DWT (tonnes)	Max Speed (knots)	Main Eng (kW)
Auto Carrier	2008	14	17,646	21.1	13,639
Bulk	2014	8	46,615	14.9	7,377
Bulk - Heavy Load	1999	23	750	12.0	994
Container - 1000	2012	10	21,293	20.1	13,558
Container - 2000	2009	13	33,343	21.8	20,902
Container - 3000	2007	15	43,589	22.5	27,058
Container - 4000	2008	14	57,237	24.8	39,129
Container - 5000	2007	15	66,770	25.1	46,989
Container - 6000	2008	14	79,297	26.9	60,175
Container - 7000	2006	16	82,998	25.5	58,800
Container - 8000	2011	11	101,386	25.9	61,815
Container - 9000	2011	11	106,520	25.9	57,670
Container - 10000	2013	9	121,224	23.8	57,114
Container - 11000	2016	6	131,182	23.8	52,208
Container - 12000	2019	3	131,680	23.1	47,812
Container - 13000	2011	11	150,119	25.4	69,353
Container - 14000	2017	5	155,278	23.2	58,724
Container - 15000	2020	2	157,199	23.7	47,557
Container - 16000	2013	9	186,855	24.1	75,274
Container - 19000	2016	6	200,148	22.6	62,830
Cruise	2009	13	7,513	21.3	47,987
General Cargo	2008	14	44,789	15.4	9,402
Miscellaneous	1989	33	6,974	20.0	18,390
Reefer	1997	25	12,255	21.9	11,791
Tanker - Chemical	2014	8	46,797	15.2	8,235
Tanker - Handysize	2007	15	40,032	15.4	7,709
Tanker - Panamax	2008	14	71,295	15.6	11,245
Tanker - Aframax	2016	6	106,340	14.8	10,829

DB ID695

Table 3.10 presents the percentages of each IMO Engine Tier (Tier) by vessel type for calls (arrivals/shifts) at the Port. In 2022, 7% of the calls had certified Tier III main engines. The percentage of Tier III engines is increasing, compared to 2021 with 3% of the calls. NO_x emissions for Tier III vessels are 75% cleaner than Tier II vessels when operating at or above 25% main engine load. The "No Tier" column includes cruise ships with gas turbines that called the Port in 2022.

Table 3.10: 2022 Percent of OGV Activity by Main Engine Tier and Vessel Type

Vessel Type	IMO Tier 0	IMO Tier I	IMO Tier II	IMO Tier III	No Tier	Calls Count
Auto Carrier	25%	67%	7%	1%	0%	91
Bulk	0%	28%	69%	4%	0%	80
Bulk - Heavy Load	100%	0%	0%	0%	0%	1
Container - 1000	0%	52%	19%	29%	0%	31
Container - 2000	3%	71%	26%	0%	0%	35
Container - 3000	0%	100%	0%	0%	0%	5
Container - 4000	2%	93%	5%	0%	0%	195
Container - 5000	1%	94%	5%	0%	0%	78
Container - 6000	0%	77%	23%	0%	0%	61
Container - 7000	0%	100%	0%	0%	0%	20
Container - 8000	0%	40%	60%	0%	0%	166
Container - 9000	0%	57%	43%	0%	0%	47
Container - 10000	0%	10%	90%	0%	0%	29
Container - 11000	0%	32%	57%	11%	0%	75
Container - 12000	0%	3%	38%	59%	0%	34
Container - 13000	0%	35%	65%	0%	0%	48
Container - 14000	0%	16%	29%	55%	0%	49
Container - 15000	0%	0%	0%	100%	0%	15
Container - 16000	0%	0%	100%	0%	0%	6
Container - 19000	0%	0%	100%	0%	0%	1
Cruise	8%	64%	18%	8%	2%	290
General Cargo	10%	59%	28%	3%	0%	39
Miscellaneous	100%	0%	0%	0%	0%	1
Reefer	75%	25%	0%	0%	0%	28
Tanker - Chemical	1%	38%	53%	9%	0%	140
Tanker - Handysize	26%	75%	0%	0%	0%	47
Tanker - Panamax	0%	89%	11%	0%	0%	27
Tanker - Aframax	0%	0%	100%	0%	0%	1
Total	**6%**	**57%**	**30%**	**7%**	**0%**	**1,640**

DB ID1789

Emissions Estimation Methodology

The methodology to estimate 2022 emissions from OGV activity is described in Section 2 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. The following improvements for methodology and activity were made in estimating 2022 OGV emissions:

- Added LNG emission factors for vessels that switched to LNG fuel at the Port.
- Updated auxiliary engine and auxiliary boiler default loads with VBP data collected since the completion of the 2021 EI.

The emission factors for both diesel and LNG fuel are per EPA's Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions (April 2022)[46]. Table 3.11 lists the emission factors for propulsion engines using 0.1% sulfur MGO fuel. As in previous inventory, when Tier III main engines operated below 25% within the emissions inventory domain, the default Tier II NO_x emission factor or, if available, Tier II Engine International Air Pollution Prevention (EIAPP) NO_x factors were used in emission calculations.

Table 3.11: OGV Emission Factors for Propulsion Engines using 0.1% S, g/kWh

Engine Category	Tier	Model Year Range	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Slow speed propulsion	Tier 0	1999 and older	0.184	0.169	0.184	17.0	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier I	2000 to 2011	0.184	0.169	0.184	16.0	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier II	2011 to 2016	0.184	0.169	0.184	14.4	0.362	1.4	0.6	593	0.029	0.012
Slow speed propulsion	Tier III		0.184	0.169	0.184	3.4	0.362	1.4	0.6	593	0.029	0.012
Medium speed propulsion	Tier 0	1999 and older	0.187	0.172	0.187	13.2	0.401	1.1	0.5	657	0.029	0.010
Medium speed propulsion	Tier I	2000 to 2011	0.187	0.172	0.187	12.2	0.401	1.1	0.5	657	0.029	0.010
Medium speed propulsion	Tier II	2011 to 2016	0.187	0.172	0.187	10.5	0.401	1.1	0.5	657	0.029	0.010
Medium speed propulsion	Tier III	2016 and newer	0.187	0.172	0.187	2.6	0.401	1.1	0.5	657	0.029	0.010
Gas turbine	na	All	0.010	0.009	0.000	5.7	0.587	0.2	0.1	962	0.075	0.002
Steam propulsion	na	All	0.160	0.147	0.000	2.0	0.587	0.2	0.1	962	0.075	0.002

Table 3.12: OGV Emission Factors for Auxiliary Boilers using 0.1% S, g/kWh

Engine Category	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Steam boilers	0.202	0.186	0	1.97	0.587	0.2	0.1	962	0.075	0.002

[46] EPA, *www.epa.gov/state-and-local-transportation/port-emissions-inventory-guidance*

Table 3.13 lists the emission factors for auxiliary engines using 0.1% sulfur fuel.

Table 3.13: Emission Factors for Auxiliary Engines using 0.1% S, g/kWh

Engine Category	Tier	Model Year Range	NO_x	PM_{10}	$PM_{2.5}$	HC	CO	SO_x	CO_2	N_2O	CH_4
Medium Auxiliary	0	1999 and older	13.8	0.19	0.17	0.40	1.10	0.42	696	0.029	0.008
Medium Auxiliary	I	2000 to 2010	12.2	0.19	0.17	0.40	1.10	0.42	696	0.029	0.008
Medium Auxiliary	II	2011 to 2015	10.5	0.19	0.17	0.40	1.10	0.42	696	0.029	0.008
Medium Auxiliary	III	2016 and newer	2.6	0.19	0.17	0.40	1.10	0.42	696	0.029	0.008
High Auxiliary	0	1999 and older	10.9	0.19	0.17	0.40	0.90	0.42	696	0.029	0.008
High Auxiliary	I	2000 to 2010	9.8	0.19	0.17	0.40	0.90	0.42	696	0.029	0.008
High Auxiliary	II	2011 to 2015	7.7	0.19	0.17	0.40	0.90	0.42	696	0.029	0.008
High Auxiliary	III	2016 and newer	2.0	0.19	0.17	0.40	0.90	0.42	696	0.029	0.008

Table 3.14 lists the emission factors for engines and steam boilers using LNG fuel per EPA's Ports EI Guidance for most pollutants, except for the SO_x EF which is from the IMO 4th GHG Study[47]. The brake specific fuel consumption (BSFC) used for LNG fuel in this report is 166 g/kWh. In 2022, there were eight containerships (14,000 TEU) that used LNG and comprised 22 arrivals total.

Table 3.14: Emission Factors for Engines and Steam Boilers using LNG fuel, g/kWh

Engine Category	IMO Tier	Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SOx	CO	HC	CO_2	N_2O	CH_4
Propulsion engines	All	All	0.03	0.028	0.00	1.30	0.005	1.3	0.00	456.50	0.029	0.00
Auxiliary engines	All	All	0.03	0.028	0.00	1.30	0.005	1.3	0.00	456.50	0.029	0.00
Steam boilers	na	na	0.03	0.028	0.00	1.30	0.005	1.3	0.00	456.50	0.029	0.00

Emission Estimates

The following tables present the estimated OGV emissions categorized in different ways, such as by engine type, by operating mode, and by vessel type. The criteria pollutant emissions are in tons per year, while the greenhouse gas emissions are in metric tons (tonnes) per year. This report includes the anchorage and loitering emissions that occurred within the geographical domain in 2022. Anchoring mainly occurs within the designated anchorage areas near the Ports or the designated contingency anchorage areas, as not to impede other vessel traffic. Loitering occurs when a vessel is no longer underway in open water, but is not at anchor, and the main engine is turned off. The decision for a vessel to loiter is at the discretion of the ship's captain and most often occurs when there are no available berths or anchorages.

[47] IMO, *https://www.imo.org/en/ourwork/Environment/Pages/Fourth-IMO-Greenhouse-Gas-Study-2020.aspx*

Table 3.15 presents summaries of emission estimates by engine type in tons per year. The emissions for the CARB-certified capture and control system, which is used to treat emissions from auxiliary engines, were included in the auxiliary engine emissions in this table.

Table 3.15: 2022 Ocean-Going Vessel Emissions by Engine Type

Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Main Engine	10	9	10	1,147	17	92	59	37,430
Auxiliary Engine	33	31	32	1,987	64	241	72	127,723
Auxiliary Boiler	22	20	0	236	48	27	12	106,082
Total	**66**	**60**	**43**	**3,369**	**129**	**360**	**143**	**271,236**

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Table 3.16 presents summaries of emission estimates by the various modes in tons per year. For each mode, the engine type emissions are also listed. At-berth hotelling and at-anchorage hotelling are listed separately. Transit and harbor maneuvering emissions include both berth and anchorage calls. The 2022 anchorage emissions are 75% lower than 2021 anchorage emissions, which shows that the backlog of vessels awaiting a berth in 2021 was reduced in 2022.

Table 3.16: 2022 Ocean-Going Vessel Emissions by Mode

Mode	Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Transit	Main	9.0	8.2	8.9	1,021	15.2	79.0	47.7	33,932
Transit	Auxiliary Engine	7.5	6.9	7.5	464	14.0	46.1	16.6	26,682
Transit	Auxiliary Boiler	0.5	0.5	0.0	6	1.1	0.7	0.3	2,663
Total Transit		**17.1**	**15.7**	**16.5**	**1,491**	**30.2**	**125.8**	**64.6**	**63,278**
Maneuvering	Main	1.4	1.2	1.3	126	1.5	13.1	11.5	3,498
Maneuvering	Auxiliary Engine	2.0	1.8	1.9	120	3.5	12.0	4.3	6,939
Maneuvering	Auxiliary Boiler	0.3	0.2	0.0	3	0.6	0.3	0.1	1,232
Total Maneuvering		**3.6**	**3.3**	**3.3**	**248**	**5.6**	**25.4**	**15.9**	**11,669**
Hotelling at-berth	Main	0.0	0.0	0.0	0	0.0	0.0	0.0	0
Hotelling at-berth	Auxiliary Engine	11.7	10.8	10.9	675	21.6	110.9	25.4	52,447
Hotelling at-berth	Auxiliary Boiler	16.9	15.5	0.0	182.7	35.0	22.0	9.1	82,164
Total Hotelling at-berth		**28.6**	**26.3**	**10.9**	**857**	**56.6**	**132.9**	**34.4**	**134,611**
Hotelling at-anchorage	Main	0.0	0.0	0.0	0	0.0	0.0	0.0	0
Hotelling at-anchorage	Auxiliary Engine	12.1	11.1	12.1	728	24.8	71.7	26.1	41,655
Hotelling at-anchorage	Auxiliary Boiler	4.4	4.0	0.0	44	11.3	4.5	2.2	20,024
Total Hotelling at-anchorage		**16.4**	**15.1**	**12.1**	**773**	**36.2**	**76.2**	**28.3**	**61,679**
Total		**65.7**	**60.4**	**42.7**	**3,369.2**	**128.6**	**360.2**	**143.2**	**271,236**

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A summary of the OGV emission estimates by vessel type for all pollutants for the year 2022 is presented in Table 3.17.

Table 3.17: 2022 Ocean-Going Vessel Emissions by Vessel Type

Vessel Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Auto Carrier	0.7	0.7	0.6	53	0.9	5.5	2.7	2,667
Bulk	4.6	4.2	2.9	189	10.7	19.9	7.3	17,749
Bulk - Heavy Load	0.0	0.0	0.0	0	0.0	0.0	0.0	8
Container - 1000	0.7	0.6	0.5	31	1.6	4.0	1.4	2,711
Container - 2000	1.0	0.9	0.7	50	1.8	5.2	2.2	3,767
Container - 3000	0.1	0.1	0.1	8	0.5	1.5	0.5	826
Container - 4000	5.5	5.0	3.8	348	10.9	32.2	14.2	23,253
Container - 5000	3.2	3.0	2.3	192	7.1	18.8	8.4	13,324
Container - 6000	2.3	2.1	1.4	121	3.0	13.1	7.7	8,733
Container - 7000	0.6	0.5	0.3	38	1.2	2.6	1.6	2,370
Container - 8000	5.8	5.3	2.2	280	8.7	21.4	13.2	26,700
Container - 9000	2.2	2.0	0.9	90	3.9	8.8	5.4	9,415
Container - 10000	0.9	0.9	0.3	51	1.6	2.7	1.6	4,490
Container - 11000	2.2	2.1	1.1	125	3.8	8.8	4.9	10,261
Container - 12000	1.0	1.0	0.5	45	1.4	5.6	3.1	4,366
Container - 13000	2.7	2.5	1.6	120	3.9	15.3	9.1	10,433
Container - 14000	1.9	1.8	0.5	81	1.7	46.6	2.7	17,537
Container - 15000	0.7	0.6	0.4	20	1.0	3.5	1.9	2,852
Container - 16000	0.5	0.4	0.3	17	1.1	2.8	1.6	1,638
Container - 19000	0.0	0.0	0.0	1	0.0	0.0	0.0	82
Cruise	17.8	16.4	15.6	1,022	38.5	94.9	36.1	63,411
General Cargo	1.4	1.3	0.9	65	3.3	6.3	2.4	5,510
Miscellaneous	0.0	0.0	0.0	1	0.0	0.1	0.0	75
Reefer	1.5	1.3	1.2	90	3.3	7.9	3.3	5,024
Tanker - Chemical	3.2	3.0	2.5	161	6.4	17.2	6.0	12,705
Tanker - Handysize	3.3	3.0	1.5	118	8.4	10.6	4.1	12,977
Tanker - Panamax	1.8	1.6	0.5	49	3.7	4.6	1.7	7,937
Tanker - Aframax	0.1	0.1	0.0	2	0.1	0.2	0.1	414
Total	**65.7**	**60.4**	**42.7**	**3,369**	**128.6**	**360.2**	**143.2**	**271,236**

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SECTION 4 HARBOR CRAFT

This section presents emission estimates for the commercial harbor craft source category, including source descriptions, geographical domain, data acquisition, operational profiles, emissions estimation methodology, and emission estimates.

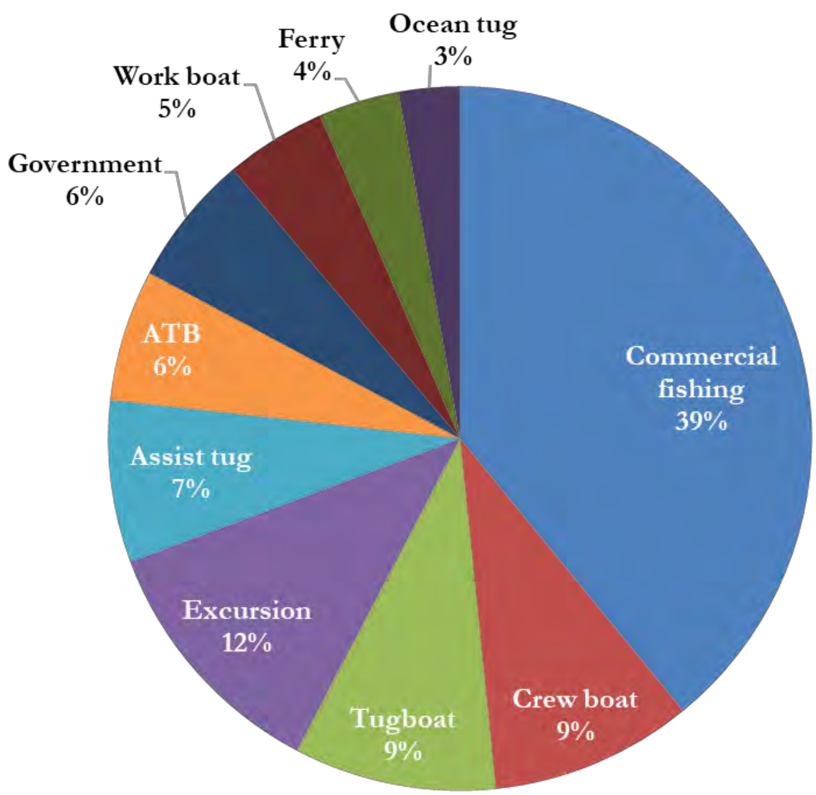
Source Description

Harbor craft are commercial vessels that spend the majority of their time within or near the port and harbor, except for articulated tug barges (ATBs). The ATBs are included to be consistent with 2022 CARB CHC regulation amendment. The harbor craft emissions inventory consists of the following vessel types:

- Articulated tug barge (ATB)
- Assist and escort tugboats
- Commercial fishing vessels
- Crew boats
- Excursion vessels
- Ferry vessels
- Government vessels
- Ocean tugs
- Tugboats
- Work boats

Figure 4.1 presents the distribution of the 215 commercial harbor craft inventoried for the Port in 2022.

Figure 4.1: Distribution of Commercial Harbor Craft Population by Vessel Type



Ocean tugs included in this section are different from the articulated tug barge (ATB). ATBs are seen as specialized single vessels. The ocean tugs in this section are not rigidly connected to the barge and are typically not home-ported at the Port but may make frequent calls with barges. They are different from tugboats because their average engine loads are higher than tugboats, which tend to idle more between jobs. Tugboats are typically home-ported in San Pedro Bay harbor and primarily operate within the harbor area but can also operate outside the harbor depending on their work assignments. Assist tugs are tugboats whose main job is to assist and escort the largest vessels that call the Port and tend to have larger engines and typically have higher hours than regular tugboats due to the assigned regular work.

Geographical Domain

The geographical domain for harbor craft is the same as that for ocean-going vessels.

Data and Information Acquisition

Commercial harbor craft companies were contacted to obtain key operational parameters for their vessels. These include:

- Vessel type
- Engine count
- Engine horsepower (or kilowatts) for main and auxiliary engines
- Engine model year
- Operating hours in calendar year 2022
- Vessel repower information

Operational Profiles

Tables 4.1 and 4.2 summarize the main and auxiliary engine data, respectively, for each vessel type. In cases where the model year, horsepower, or operating hour information was missing, the averages by vessel type were used as defaults. Defaults were used mainly for commercial fishing vessels and resulted in the use of defaults for 10% of engine model year values, 8% of horsepower values, and 10% of operating hours.

There are a number of companies that operate harbor craft in both the ports of Los Angeles and Long Beach. The activity hours for the vessels that are common to both ports reflect work performed during 2022 for the Port of Los Angeles only.

Table 4.1: 2022 Summary of Propulsion Engine Data by Vessel Category

Harbor Craft Type	Vessel Count	Engine Count	Model year Minimum	Model year Maximum	Model year Average	Horsepower Minimum	Horsepower Maximum	Horsepower Average	Annual Operating Hours Minimum	Annual Operating Hours Maximum	Annual Operating Hours Average
Assist tug	16	32	1999	2021	2013	2,000	3,420	2,651	0	1,873	1,134
ATB	13	24	2001	2018	2010	2,035	6,000	4,449	0	359	97
Commercial fishing	84	94	1957	2018	2004	150	1,000	379	0	5,000	1,482
Crew boat	20	47	2003	2021	2012	180	1,450	573	17	1,736	767
Excursion	25	49	2006	2021	2016	280	2,600	573	0	2,986	1,044
Ferry	8	20	2010	2022	2014	2,250	2,680	2,298	652	1,737	1,097
Government	13	25	1993	2019	2008	240	1,770	608	2	1,061	316
Ocean tug	6	12	2003	2019	2010	1,875	2,375	1,979	500	1,500	700
Tugboat	20	39	2001	2020	2012	235	3,386	1,008	1	1,661	506
Work boat	10	20	2008	2022	2015	210	1,000	533	0	3,456	1,038
Total	**215**	**362**									

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Table 4.2: 2022 Summary of Auxiliary Engine Data by Vessel Category

Harbor	Vessel	Engine	Model year			Horsepower			Annual Operating Hours		
Craft Type	Count	Count	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
Assist tug	16	35	2002	2021	2016	54	369	208	0	2,420	1,493
ATB	13	30	2001	2018	2013	102	800	252	0	2,132	340
ATB's Barge	na	57	2001	2008	2006	95	1900	468	0	319	75
Commercial fishing	84	42	1957	2016	2010	12	185	82	0	5,000	2,029
Crew boat	20	22	2009	2021	2015	11	180	58	8	2,467	803
Excursion	25	19	1981	2020	2011	11	54	37	0	4,000	2,260
Ferry	8	16	2008	2017	2012	18	120	69	506	1,916	920
Government	13	18	2002	2019	2006	25	1555	463	0	1359	238
Ocean tug	6	12	2003	2019	2010	80	150	115	500	750	550
Tugboat	20	35	2004	2020	2012	15	429	124	0	2,825	613
Work boat	10	13	1979	2021	2010	39	133	78	0	4,419	1,257
Total	**215**	**299**									

Harbor craft engines with known model year and horsepower (hp) were categorized according to their respective EPA marine engine standards (known as EPA Tier). Table 4.3 is consistent with CARB CHC regulation amendment.

Table 4.3: Harbor Craft Marine Engine Tier Levels

EPA Tier	Marine Engine Model Year Range	Horsepower Range
Tier 0	2003 and older	All
Tier 1	2004 to 2006	All
Tier 2	2007 to 2008	< 100 hp
Tier 2	2007 to 2012	≥ 100 hp
Tier 3	2009 and newer	< 100 hp
Tier 3	2013 and newer	100 to 800 hp
Tier 3	2013 to 2016	≥ 800 hp
Tier 4	2017 and newer	≥ 800 hp

Figure 4.2 provides the distribution by tier of all harbor craft propulsion and auxiliary engines operating at the Port in 2022. If model year and/or horsepower information were not available, the engines were classified as unknown. Due to rounding, the percent in the figure may not add up to 100%.

Figure 4.2: Distribution of Harbor Craft Engines by Engine Standards

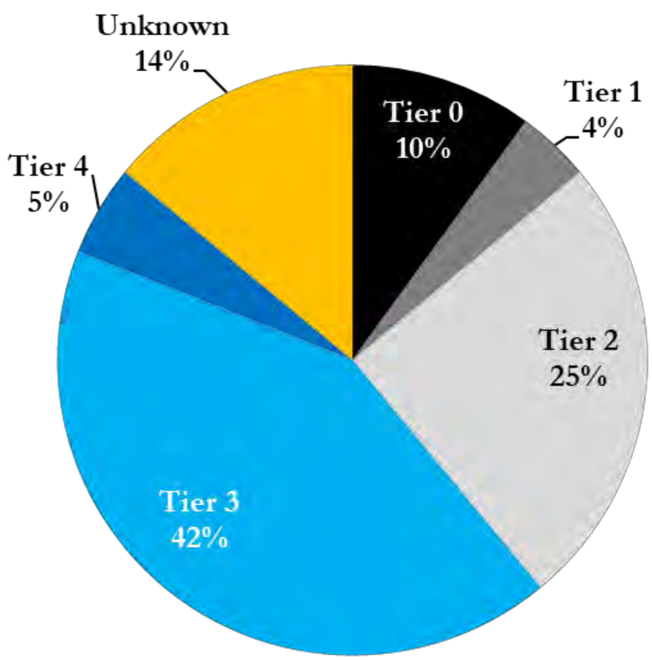


Table 4.4 summarizes the energy consumption (kWh) per engine tier used to estimate 2022 harbor craft emissions. The newer Tier 2 to Tier 4 engines made up 84% of the harbor craft energy consumption, indicating higher use of cleaner engines. Energy consumption of harbor craft engines with an unknown tier was distributed among other tiers with similar characteristics based on the defaults used for missing model year or horsepower for emissions calculations.

Table 4.4: Harbor Craft Energy Consumption by Engine Tier, kWh and %

Engine Tier	2022 kWh	2022 % of Total
Tier 0	6,166,632	9%
Tier 1	5,388,336	8%
Tier 2	24,351,136	34%
Tier 3	26,358,040	37%
Tier 4	9,163,808	13%
Total	**71,427,952**	**100%**

Emissions Estimation Methodology

The emissions calculation methodology and the emission rates are described in Section 3 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. The Port's harbor craft emission calculation methodology is the same as the previous year and is consistent with the methodology used by CARB to estimate emissions inventory for commercial harbor craft operating in California.[48] Harbor craft emissions are estimated for each engine individually, based on the engine's model year, power rating, and annual hours of operation.

Emission Estimates

Table 4.5 summarizes the estimated 2022 harbor craft emissions by vessel type and engine type. In order for the total emissions to be consistently displayed for each pollutant, the individual values in each table column do not, in some cases, add up to the listed total in the table. This is because there are fewer decimal places displayed (for readability) than were included in the calculated total. The criteria pollutants are listed as tons per year while the CO_2e values are listed as tonnes (metric tons) per year.

[48] CARB, *Commercial Harbor Craft Regulatory Activities*, Appendix H: 2021 Update to the Emission Inventory for Commercial Harbor Craft: Methodology and Results, Date of release, September 21, 2021. *www.arb.ca.gov/sites/default/files/barcu/regact/2021/chc2021/apph.pdf*

Table 4.5: 2022 Harbor Craft Emissions by Vessel and Engine Type

Harbor Craft Type	Engine Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Assist Tug	Auxiliary	0.3	0.3	0.3	13.3	0.0	3.5	0.5	2,015
	Propulsion	1.4	1.3	1.4	69.1	0.1	14.2	2.9	8,527
Assist Tug Total		**1.7**	**1.6**	**1.7**	**82.5**	**0.1**	**17.6**	**3.4**	**10,542**
ATB	Auxiliary	0.2	0.2	0.2	6.0	0.0	1.4	0.2	742
	Propulsion	1.8	1.7	1.8	40.7	0.0	6.0	3.5	2,783
ATB Total		**2.0**	**1.9**	**2.0**	**46.6**	**0.0**	**7.4**	**3.8**	**3,525**
Barge - ATB	Auxiliary	0.2	0.2	0.2	4.6	0.0	0.8	0.2	364
	Propulsion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Barge Total		**0.2**	**0.2**	**0.2**	**4.6**	**0.0**	**0.8**	**0.2**	**364**
Commercial Fishing	Auxiliary	0.4	0.4	0.4	11.5	0.0	3.2	0.5	1,684
	Propulsion	3.1	3.0	3.1	98.0	0.1	24.9	6.1	8,026
Commercial Fishing Total		**3.5**	**3.4**	**3.5**	**109.5**	**0.1**	**28.1**	**6.6**	**9,709**
Crew boat	Auxiliary	0.1	0.1	0.1	1.8	0.0	0.5	0.1	258
	Propulsion	0.7	0.7	0.7	34.1	0.0	5.7	1.3	3,301
Crew boat Total		**0.8**	**0.7**	**0.8**	**36.0**	**0.0**	**6.1**	**1.4**	**3,559**
Excursion	Auxiliary	0.1	0.1	0.1	3.3	0.0	0.9	0.2	443
	Propulsion	0.4	0.4	0.4	22.5	0.0	3.8	0.9	2,553
Excursion Total		**0.5**	**0.5**	**0.5**	**25.8**	**0.0**	**4.8**	**1.0**	**2,996**
Ferry	Auxiliary	0.1	0.1	0.1	1.7	0.0	0.5	0.1	240
	Propulsion	1.5	1.4	1.5	74.4	0.1	14.5	3.2	8,324
Ferry Total		**1.5**	**1.5**	**1.5**	**76.0**	**0.1**	**14.9**	**3.3**	**8,564**
Government	Auxiliary	0.0	0.0	0.0	1.1	0.0	0.2	0.1	100
	Propulsion	0.3	0.3	0.3	9.7	0.0	1.5	0.6	851
Government Total		**0.4**	**0.3**	**0.4**	**10.8**	**0.0**	**1.7**	**0.7**	**951**
Ocean Tug	Auxiliary	0.1	0.1	0.1	1.7	0.0	0.4	0.1	208
	Propulsion	1.8	1.7	1.8	59.0	0.0	8.5	3.3	4,373
Ocean Tug Total		**1.9**	**1.8**	**1.9**	**60.7**	**0.0**	**8.9**	**3.3**	**4,581**
Tugboat	Auxiliary	0.2	0.1	0.2	4.9	0.0	1.3	0.2	724
	Propulsion	0.5	0.5	0.5	25.8	0.0	4.5	1.1	2,534
Tugboat Total		**0.7**	**0.6**	**0.7**	**30.7**	**0.0**	**5.9**	**1.3**	**3,258**
Work boat	Auxiliary	0.0	0.0	0.0	1.6	0.0	0.4	0.1	234
	Propulsion	0.2	0.2	0.2	13.5	0.0	3.1	0.5	2,529
Work boat Total		**0.3**	**0.3**	**0.3**	**15.1**	**0.0**	**3.5**	**0.5**	**2,763**
Harbor Craft Total		**13.4**	**12.8**	**13.4**	**498.3**	**0.5**	**99.7**	**25.3**	**50,811**

DB ID427

SECTION 5 CARGO HANDLING EQUIPMENT

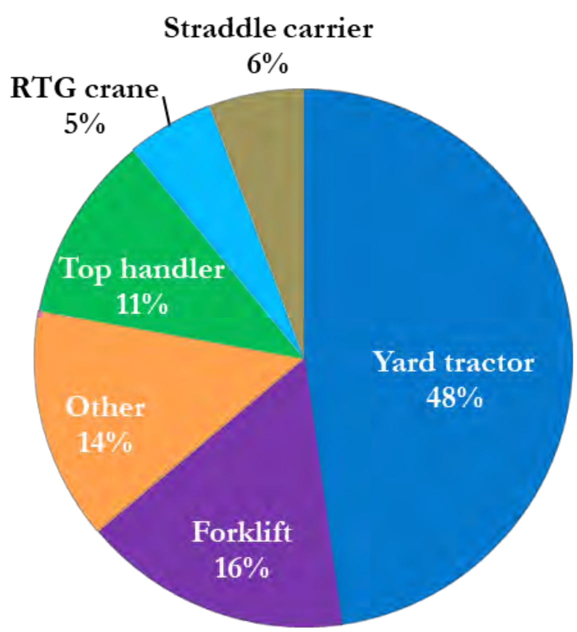
This section presents emissions estimates for the CHE source category, including source descriptions, geographical domain, data acquisition, operational profiles, emissions estimation methodology, and emission estimates.

Source Description

The CHE category includes equipment that moves cargo (including cargo in containers, general cargo, and bulk cargo) to and from marine vessels, railcars, and on-road trucks. The equipment is typically operated at marine terminals or at rail yards and not on public roadways. This inventory includes cargo handling equipment fueled by diesel, gasoline, propane, liquefied natural gas (LNG), and electricity. Due to the diversity of cargo handled by the Port's terminals, there is a wide range of equipment types.

Figure 5.1 presents the population distribution of the 1,932 pieces of equipment inventoried at the Port for calendar year 2022. The 14% for "other" equipment captures a variety of terminal equipment, such as bulldozer, cone vehicle, loader, man lift, material handler, rail pusher, reach stacker, skid steer loader, side pick, sweeper, telehandler, and truck. The hybrid and conventional rubber-tired gantry (RTG) crane counts were included under RTG crane. The hybrid and conventional straddle carrier counts were included under straddle carrier.

Figure 5.1: 2022 CHE Count Distribution by Equipment Type



Geographical Domain

The geographical domain for CHE is the terminals within the Port.

Data and Information Acquisition

The maintenance and/or operating staff of each terminal were contacted in person, by e-mail, or by telephone, to obtain equipment count and activity information on the CHE specific to their terminal's operation for the 2022calendar year.

Operational Profiles

Table 5.1 summarizes the cargo handling equipment data collected from the terminals and facilities for the calendar year 2022. The table includes the count of all equipment as well as the range and average horsepower, model year, and annual operating hours by equipment type for equipment with known operating parameters. For the electric-powered equipment shown in the table, "na" denotes "not applicable" for engine size, model year, and operating hours.

The averages by CHE engine and fuel type were used as defaults for any missing information. Similar to the previous year, defaults were used for 1% of engine model year values, 4% of horsepower values, and 1% of operating hours.

Table 5.1: 2022 CHE Engine Characteristics for All Terminals

Equipment	Engine Type	Count	Power (hp)			Model Year			Annual Activity Hours		
			Min	Max	Average	Min	Max	Average	Min	Max	Average
Stacking crane	Electric	29	na	na	na	na	na	na	961	2,869	2,151
Bulldozer	Diesel	3	200	310	237	2006	2007	2007	143	467	308
Cone Vehicle	Diesel	26	25	35	33	2010	2021	2015	0	3,476	773
Crane	Diesel	7	130	751	294	1995	2016	2008	73	1,033	346
Crane	Electric	3	na	na	na	na	na	na	na	na	na
Wharf crane	Electric	87	na	na	na	na	na	na	0	4,432	1,734
Forklift	Diesel	96	56	388	182	1993	2021	2013	0	2,501	412
Forklift	Electric	33	0	0	0	2022	2022	2022	0	432	188
Forklift	Gasoline	6	45	45	45	2010	2012	2011	55	1,663	564
Forklift	Propane	176	28	200	79	1988	2021	2008	0	4,547	379
Loader	Diesel	14	74	527	308	2007	2022	2014	46	4,380	1,394
Man lift	Diesel	18	49	110	84	2000	2018	2008	0	883	212
Man lift	Electric	4	na	na	na	na	na	na	na	na	na
Man lift	Gasoline	1	60	60	60	2007	2007	2007	96	96	96
Material handler	Diesel	14	268	475	395	2005	2020	2011	158	3,903	1,588
Rail pusher	Diesel	1	194	194	194	2012	2012	2012	1,195	1,195	1,195
Rail pusher	Electric	1	na	na	na	2021	2021	2021	453	453	453
Reach stacker	Diesel	4	250	449	344	2012	2021	2015	62	656	303
Hybrid RTG	Diesel	15	197	302	263	2011	2018	2017	2,165	6,338	5,081
RTG crane	Diesel	86	320	779	626	2002	2021	2010	0	6,007	2,779
Side pick	Diesel	14	152	275	235	2000	2020	2015	0	4,718	1,451
Skid steer loader	Diesel	5	56	75	69	1994	2018	2008	28	951	428
Hybrid straddle carrier	Diesel	82	102	103	103	2016	2019	2018	507	3,846	2,753
Straddle carrier	Diesel	28	425	425	425	2013	2015	2014	0	5,833	4,626
Sweeper	Diesel	6	96	210	175	2000	2019	2014	109	964	378
Sweeper	Gasoline	3	205	205	205	2005	2018	2013	na	na	na
Telehandler	Diesel	7	74	130	82	2013	2021	2017	51	831	273
Top handler	Diesel	215	250	400	340	1999	2022	2013	0	4,275	2,152
Top handler	Electric	2	na	na	na	2019	2019	2019	na	na	na
Truck	Diesel	22	185	598	340	1988	2020	2008	0	2,924	887
Truck	Propane	1	na	na	na	1973	1973	1973	297	297	297
Yard tractor	Diesel	769	158	250	226	1995	2021	2012	0	4,851	1,676
Yard tractor	Electric	5	na	na	na	2019	2019	2019	98	636	412
Yard tractor	LNG	22	250	250	250	2018	2018	2018	661	1,451	1,104
Yard tractor	Propane	127	195	231	201	2004	2011	2008	28	3,213	1,824
Total count		**1,932**									

DB ID228

Table 5.2 summarizes the emission reduction technologies utilized in cargo handling equipment, including diesel particulate filters (DPF) and BlueCAT retrofit for large-spark ignition (LSI) engines. In 2022, renewable diesel was used by the majority of container terminals.

Table 5.2: 2022 Count of CHE Utilizing Emission Reduction Technologies

Equipment	On-Road Engines	DPF Retrofit	Hybrid	BlueCAT LSI Equip	Renewable Diesel
Forklift	0	28	0	26	69
RTG crane	0	39	15	0	63
Straddle carrier	0	0	82	0	110
Top handler	0	57	0	0	148
Yard tractor	646	4	0	0	563
Sweeper	0	1	0	0	5
Other	13	36	0	0	56
Total	**659**	**165**	**97**	**26**	**1,014**

DB ID234

Table 5.3 shows the distribution of equipment by fuel type. The "other" electric equipment includes automatic stacking carriers (ASCs), cranes, loaders, manlifts, and miscellaneous. The fossil fueled equipment in the other category includes propane truck, gasoline sweeper and manlift, in addition to many diesel equipment types (bulldozer, cone vehicle, crane, loader, manlift, material handler, reach stacker, side pick, skid steer loader, sweeper, telehandler, truck).

Table 5.3: 2022 Count of CHE Equipment by Fuel Type

Equipment	Electric	LNG	Propane	Gasoline	Diesel	Total
Forklift	33	0	176	6	96	311
Wharf crane	87	0	0	0	0	87
RTG crane	0	0	0	0	101	101
Straddle carrier	0	0	0	0	110	110
Top handler	2	0	0	0	215	217
Yard tractor	5	22	127	0	769	923
Other	37	0	1	4	141	183
Total	**164**	**22**	**304**	**10**	**1,432**	**1,932**

DB ID235

Table 5.4 summarizes the distribution of diesel cargo handling equipment engines including smaller auxiliary RTG engines by off-road diesel engine standards[49] (Tier 0, 1, 2, 3, 4i interim, and 4f final) based on model year and horsepower range. The table also lists the count of each type of equipment using on-road diesel engines. The table does not reflect the fact that some of the engines may be cleaner than the tier level they are certified to because of the use of emissions control devices added to existing equipment. The "Unknown Tier" column shown in the table represents equipment with missing horsepower or model year information necessary for tier level classifications.

Table 5.4: 2022 Count of Diesel Engines by Engine Standards

Equipment Type	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4i	Tier 4f	On-road Engine	Unknown Tier	Total Diesel Engines
Forklift	1	0	7	19	31	24	0	14	96
RTG crane	0	0	35	1	37	28	0	0	101
Side pick	0	2	0	0	0	12	0	0	14
Top handler	0	1	20	37	37	112	0	8	215
Yard tractor	4	0	0	0	19	96	646	4	769
Other	2	5	10	22	19	53	13	3	127
Straddle carrier	0	0	0	0	17	93	0	0	110
Total	**7**	**8**	**72**	**79**	**160**	**418**	**659**	**29**	**1,432**
Percent	**0%**	**1%**	**5%**	**6%**	**11%**	**29%**	**46%**	**2%**	

DB ID878

[49] EPA, *Nonroad Compression-Ignition Engines- Exhaust Emission Standards,* June 2004

Table 5.5 summarizes the energy consumption (kWh) for the diesel equipment by engine tier and the other engine types (i.e., gasoline, propane, and LNG), but not electric. Energy consumption of cargo handling equipment engines with unknown tiers was distributed among other tiers based on defaults used for missing model year or horsepower for emissions calculations.

Table 5.5: 2022 Equipment Energy Consumption by Engine Tier, kWh and %

Engine Type	Engine Tier	Energy Consumption kWh	Percent Total
Diesel	Tier 0	602,684	0.3%
Diesel	Tier 1	250,030	0.1%
Diesel	Tier 2	10,902,638	4.9%
Diesel	Tier 3	12,727,111	5.7%
Diesel	Tier 4i	32,794,676	14.6%
Diesel	Tier 4f	74,973,837	33.4%
Diesel	Onroad engines	75,476,400	33.7%
Gasoline		170,317	0.1%
Propane		14,631,978	6.5%
LNG		1,762,142	0.8%
Total		**224,291,814**	

Emissions Estimation Methodology

The emissions calculation methodology and the emission rates are updated based on CARB's recommendation and described in Section 4 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. The Port's emissions calculation methodology used to estimate CHE emissions is consistent with CARB's latest methodology for estimating emissions from CHE.[50] In 2022, the emission factors and fuel correction factors were updated.

[50] CARB, 2017 Off-road Diesel Emission Factors and 2017 Off-road Diesel Emission Factors Documentation. *https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-documentation-road*

Emission Estimates

Table 5.6 summarizes the CHE emissions by terminal type. The "Other" category represents CHE emissions for the intermodal yard and other facilities located on Port property.

Table 5.6: 2022 CHE Emissions by Terminal Type

Terminal Type	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Auto	0.0	0.0	0.0	0.0	0.0	0.2	0.0	5
Break-Bulk	0.6	0.6	0.6	23.0	0.1	22.8	3.5	8,320
Container	11.2	10.4	10.0	388.4	1.7	616.1	81.9	156,271
Cruise	0.0	0.0	0.0	0.1	0.0	0.6	0.0	48
Dry Bulk	0.1	0.1	0.1	6.4	0.0	7.0	0.7	454
Liquid	0.0	0.0	0.0	0.1	0.0	0.2	0.1	49
Other	0.3	0.3	0.2	6.5	0.1	24.8	1.9	5,487
Total	**12.3**	**11.4**	**10.9**	**424.5**	**1.9**	**671.8**	**88.1**	**170,634**

Table 5.7 presents the emissions by cargo handling equipment type and engine type.

Table 5.7: 2022 CHE Emissions by Equipment and Engine Type

Equipment	Engine	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Bulldozer	Diesel	0.0	0.0	0.0	0.5	0.0	0.1	0.0	74
Cone vehicle	Diesel	0.1	0.0	0.1	1.5	0.0	2.0	0.2	176
Crane	Diesel	0.1	0.0	0.1	1.6	0.0	0.6	0.1	272
Forklift	Diesel	0.1	0.1	0.1	4.2	0.0	5.2	0.4	1,160
Forklift	Gasoline	0.0	0.0	0.0	0.1	0.0	3.7	0.3	37
Forklift	Propane	0.1	0.1	0.0	3.8	0.0	28.5	1.6	1,088
Loader	Diesel	0.2	0.2	0.2	4.9	0.0	5.6	1.0	2,323
Man lift	Diesel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2
Man lift	Gasoline	0.0	0.0	0.0	0.6	0.0	0.6	0.1	91
Material handler	Diesel	0.1	0.1	0.1	8.7	0.0	6.4	1.4	2,997
Rail pusher	Diesel	0.0	0.0	0.0	0.2	0.0	0.2	0.0	68
Reach stacker	Diesel	0.0	0.0	0.0	0.2	0.0	0.3	0.0	135
Hybrid RTG	Diesel	0.1	0.1	0.1	1.8	0.0	5.2	0.8	2,228
RTG crane	Diesel	1.9	1.7	1.9	99.3	0.2	37.8	10.0	16,995
Side pick	Diesel	0.1	0.1	0.1	2.3	0.0	4.0	0.5	1,723
Skid steer loader	Diesel	0.0	0.0	0.0	0.3	0.0	0.3	0.0	46
Hybrid Straddle Carrier	Diesel	0.1	0.1	0.1	4.7	0.0	18.0	0.8	2,627
Straddle carrier	Diesel	0.7	0.6	0.7	16.5	0.1	13.8	2.7	6,031
Sweeper	Diesel	0.0	0.0	0.0	0.3	0.0	3.1	0.1	132
Sweeper	Gasoline	0.0	0.0	0.0	0.2	0.0	0.5	0.0	165
Telehandler	Diesel	0.0	0.0	0.0	0.1	0.0	0.2	0.0	32
Top handler	Diesel	4.0	3.6	4.0	127.9	0.6	117.4	22.2	52,683
Truck	Diesel	0.0	0.0	0.0	0.8	0.0	1.8	0.1	38
Truck	Propane	0.4	0.3	0.4	7.6	0.0	5.3	0.9	2,300
Yard tractor	Diesel	3.3	3.0	3.3	97.4	0.8	160.9	12.7	64,320
Yard tractor	LNG	0.0	0.0	0.0	0.0	0.0	0.6	0.0	773
Yard tractor	Propane	1.2	1.2	0.0	39.0	0.0	249.7	32.0	12,116
Total		**12.3**	**11.4**	**10.9**	**424.5**	**1.9**	**671.8**	**88.1**	**170,634**

DB ID237

SECTION 6 LOCOMOTIVES

This section presents emission estimates for the railroad locomotives source category, including source description, geographical domain, data and information acquisition, operational profiles, emissions estimation methodology, and emission estimates.

Source Description

Railroad operations are typically described in terms of two different types of operations, line haul and switching. Line haul refers to the movement of cargo by train over long distances. Line haul operations occur at or near the Port as the initiation or termination of a line haul trip; cargo is either picked up for transport to destinations across the country or is dropped off for shipment overseas. Switching refers to short movements of rail cars, such as in the assembling and disassembling of trains at various locations in and around the Port, sorting of the cars of inbound cargo trains into contiguous "fragments" for subsequent delivery to terminals, and the short distance hauling of rail cargo within the Port.

The Port is served by three railway companies:

- Burlington Northern Santa Fe Railway Company (BNSF)
- Union Pacific Railroad (UP)
- Pacific Harbor Line (PHL)

BNSF and UP provide line haul service to and from the Port and operate switching services at their off-port locations, while PHL performs most of the switching operations within the Port. Locomotives used for line haul operations are typically equipped with large, powerful engines of over 4,000 hp, while switch engines are smaller, typically having one or more engines totaling 2,000 to 3,000 hp. The locomotives used in switching service at the Port are primarily new, low-emitting locomotives specifically designed for switching duty. Switching locomotives are operated by PHL within the Port and by UP at the near-port railyard.

Geographical Domain

The specific activities included in this emissions inventory are movements of cargo within Port boundaries, directly to or from Port-owned properties such as terminals and on-Port rail yards, and within and to the boundary of the SoCAB. The inventory does not include rail movements of cargo that occur solely outside the Port, such as off-port rail yard switching, and movements that neither begin nor end at a Port property, such as east-bound line hauls that initiate in central Los Angeles intermodal yards. For rail locomotives, the domain extends from the Port to the cargo's first point of rest within the SoCAB or up to the SoCAB boundary, whichever comes first. Figure 1.1, presented earlier in Section 1, illustrates the boundaries.

Data and Information Acquisition

Information from the following general sources was used to estimate emissions associated with maritime industry-related activities of locomotives operating both within the Port and outside the Port to the boundary of the SoCAB:

- Previous emissions studies
- Port cargo statistics
- Input from railroad operators
- Information published by EPA, the Surface Transportation Board, and other sources as cited in this report
- CARB MOU line-haul fleet compliance data

The Port continues to use the most recent, locally specific data available, including MOU compliance data reflective of actual recent line haul fleet mix characteristics in the SoCAB. In addition, PHL has provided fuel consumption information for each locomotive in service in each calendar year, along with the engine tier levels of the locomotives. Table 6.1 lists the number of locomotives for each tier level that were operated in 2022 and the percentage of fuel used by locomotives in each tier. Discussion of the tiers and a list of tier-specific emission factors are included in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4.

Table 6.1: PHL Switching Fleet Mix, 2022

Locomotive Tier Level /Power Type	Count	% of Fuel Consumed
Genset	6	2%
Tier 3	0	0%
Tier 3+	17	96%
Tier 4	1	2%
Totals	**24**	**100%**

Operational Profiles

The goods movement rail system in terms of the activities that are carried out by locomotive operators is the same as described in detail in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4.

Emissions Estimation Methodology

The emission calculation methodology used to estimate locomotive emissions is consistent with the methodology described in detail in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. Tables that contain information specific to this EI are presented below.

Table 6.2 presents the MOU compliance information submitted by both of the line haul railroads and the composite of both railroads' pre-Tier 0 through Tier 4 locomotive NO_x emissions for calendar year 2021, showing a weighted average NO_x emission factor of 5.42 g/hphr.[51] The 2021 reports were used instead of the 2022 due to the timing of the inventory data collection phase and of the posting of the compliance reports by CARB. The emission factors based on the 2022 compliance report will be used for the future 2023 EI.

[51]Notes from railroads' MOU compliance submissions:
1. For more information on the U.S. EPA locomotive emission standards please visit. *www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-emission-standards-locomotives-and-locomotive*
2. Number of locomotives is the sum of all individual locomotives that visited or operated within the SoCAB at any time during 2021.

Table 6.2: MOU Compliance Data, MWh and g NO_x/hp-hr

Engine Tier	Number of Locomotives	Megawatt-hours (MWh)	% MWh by Tier Level	Wt'd Avg NO_x (g/bhp-hr)	Tier Contribution to Fleet Average (g/bhp-hr)
BNSF					
Pre-Tier 0	722	1,256	0.6%	26.0	0.15
Tier 0	70	5,022	2.3%	10.5	0.25
Tier 1	1,331	69,781	32%	6.1	1.98
Tier 2	1,643	72,028	33%	4.6	1.54
Tier 3	1,228	52,785	25%	3.8	0.93
Tier 4	264	14,339	6.7%	1.2	0.08
ULEL	0	0	0%	-	-
Total BNSF	**5,258**	**215,211**	**100%**		**4.93**
UP					
Pre-Tier 0	25	202	0.1%	18.6	0.02
Tier 0	543	17,444	9%	8.4	0.79
Tier 1	1,782	74,890	40%	7.1	2.87
Tier 2	1,391	50,743	27%	5.2	1.42
Tier 3	969	30,320	16%	4.9	0.80
Tier 4	247	11,952	6.4%	1.1	0.07
ULEL	0	0	0%		0.00
Total UP	**4,957**	**185,551**	**100%**		**5.97**
		ULEL Credit Used			0.50
		UP Fleet Average			**5.47**
Both railroads, excluding ULELs and ULEL credits					
Pre-Tier 0	747	1,458	0%	25.0	0.09
Tier 0	613	22,466	6%	8.9	0.50
Tier 1	3,113	144,671	36%	6.6	2.39
Tier 2	3,034	122,771	31%	4.8	1.49
Tier 3	2,197	83,105	21%	4.2	0.87
Tier 4	511	26,291	6.56%	1.2	0.076
Total both	**10,215**	**400,762**	**100%**		**5.42**

Emission factors for particulate matter (PM_{10}), HC, and CO were calculated using the tier-specific emission rates for those pollutants published by EPA.[52] The emission rates were used to develop weighted average emission factors using the megawatt hour (MWh) numbers provided in the railroads' submissions. These results are presented in Table 6.3.

Table 6.3: Fleet MWh and PM, HC, CO Emission Factors, g/bhp-hr

Engine Tier	MWh	% of MWh	EPA Tier-specific PM_{10}	EPA Tier-specific HC	EPA Tier-specific CO	Fleet Composite PM_{10}	Fleet Composite HC	Fleet Composite CO
			g/bhp-hr			g/bhp-hr		
Pre-Tier 0	1,458	0%	0.32	0.48	1.28	0.001	0.00	0.01
Tier 0	22,466	6%	0.32	0.48	1.28	0.018	0.03	0.07
Tier 1	144,671	36%	0.32	0.47	1.28	0.116	0.17	0.46
Tier 2	122,771	31%	0.18	0.26	1.28	0.055	0.08	0.39
Tier 3	83,105	21%	0.08	0.13	1.28	0.017	0.03	0.27
Tier 4	26,291	7%	0.015	0.04	1.28	0.000	0.00	0.08
Totals	**400,762**	**100%**				**0.207**	**0.31**	**1.28**

Emission factors for $PM_{2.5}$ and DPM were calculated as fractions of PM_{10}, with $PM_{2.5}$ calculated as 94% of PM_{10} consistent with CARB methodology and DPM equal to PM_{10}, since all PM emissions from diesel engines are defined as DPM. Rounding of emission factors before and after the conversion resulted in the emission factor values shown in Table 6.4. Table 6.4 summarizes the latest emission factors for line haul locomotives, presented in unit of g/hp-hr. The greenhouse gas emission factors are unchanged from the previous EI.

Table 6.4: Emission Factors for Line Haul Locomotives, g/bhp-hr

	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4
EF, g/bhp-hr	0.207	0.190	0.207	5.42	0.005	1.28	0.31	489	0.013	0.040

[52] EPA Office of Transportation and Air Quality, "Emission Factors for Locomotives" EPA-420-F-09-025 April 2009.

On-Port Line Haul Emissions

The estimated number of trains per year, locomotives per train, and on-port hours per train were multiplied together to calculate total locomotive hours per year. This activity information is summarized in Table 6.5.

Table 6.5: 2022 Estimated On-Port Line Haul Locomotive Activity

Activity Measure	Inbound	Outbound	Total
Trains per Year	3,860	3,035	6,895
Locomotives per Train	3	3	N/A
Hours on Port per Trip	1	2.5	N/A
Locomotive Hours per Year	11,580	22,763	34,343

Out-of-Port Line Haul Emissions

Table 6.6 lists the estimated totals of travel distance, out-of-port trains per year, out-of-port million gross tons (MMGT), out-of-port MMGT-miles, gallons of fuel used, and horsepower-hours. The gross ton-miles were calculated by multiplying distance in miles by the number of trains and by the average weight of a train, which was estimated to be 7,402 tons. Fuel consumption was calculated by multiplying gross ton-miles by the average fuel consumption factor of 0.963 gallons per thousand gross ton-miles.[53] Overall horsepower hours were calculated by multiplying the fuel used by the fuel consumption conversion factor of 20.8 hp-hr/gal.

Table 6.6: 2022 Gross Ton-Mile, Fuel Use, and Horsepower-hour Estimate

	Distance miles	Trains per year	MMGT per year	MMGT-miles per year
Alameda Corridor	21	4,782	35	735
Central LA to Air Basin Boundary	84	4,782	35	2,940
Million gross ton-miles				**3,675**
Estimated gallons of fuel (millions)				**3.54**
Estimated million horsepower-hours				**73.6**

[53] Union Pacific, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2022* and BNSF, *Class I Railroad Annual Report R-1 to the Surface Transportation Board for the Year Ending Dec. 31, 2022. https://www.stb.gov/reports-data/economic-data/annual-report-financial-data/*

Emission Estimates

A summary of estimated emissions from locomotive operations related to the Port is presented below in Table 6.7. These emissions include operations within the Port and maritime industry-related emissions outside the Port out to the boundary of the SoCAB. The maritime industry-related off-port activity was associated with cargo movements having either their origin or termination at the Port. Emissions resulting from the movement of cargo originating or terminating at one of the off-port rail yards were not included. The criteria pollutants are listed as tons per year, while the CO_2e values are listed as tonnes (metric tons) per year.

In order for the total emissions to be consistently displayed for each pollutant, the individual values in the table entries do not, in some cases, add up to the totals listed in the table. This is because there are fewer decimal places displayed (for readability) than were included in the calculated totals.

Table 6.7: 2022 Locomotive Operations Estimated Emissions

Activity Component	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Switching	0.4	0.4	0.4	41.6	0.05	16.0	2.4	5,330
Line Haul	25.8	23.7	25.8	675.2	0.62	159.5	38.6	55,815
Total	**26.2**	**24.1**	**26.2**	**716.8**	**0.68**	**175.4**	**41.0**	**61,145**

DB ID696

SECTION 7 HEAVY-DUTY VEHICLES

This section presents emission estimates for the HDV emission source category, including source description, geographical domain, data and information acquisition, operational profiles, emissions estimation methodology, and emission estimates.

Source Description

Heavy-duty vehicles (specifically heavy-duty trucks) are used extensively to move cargo, particularly containerized cargo, to and from the marine terminals. Trucks deliver cargo to both local and national destinations. The local activity is often referred to as drayage and includes the transfer of containers between terminals and off-port railcar loading facilities. In the course of their daily operations, both local and national destined trucks are driven onto and through Port terminals, where they deliver and/or pick up cargo. They are also driven on public roads within the Port boundaries and on public roads outside the Port.

While most of the trucks are diesel-fueled vehicles, alternatively fueled trucks, primarily those fueled by liquefied natural gas (LNG) also service the Port. The emission estimates prepared using this methodology reflect the use of both types of fuel. In addition, approximately 0.25% of the trucks were zero emissions trucks in 2022 and included battery electric and hydrogen fuel cell trucks.

The most common configuration of HDV is the articulated tractor-trailer (truck and semi-trailer) having five axles, including the trailer axles. The most common type of trailer in the study area is the container chassis, built to accommodate standard-sized cargo containers. Additional trailer types include tankers, boxes, and flatbeds. A tractor traveling without an attached trailer is called a "bobtail" while a tractor pulling an unloaded container trailer chassis is known simply as a "chassis." These vehicles are all classified as heavy HDVs regardless of their actual weight because the classification is based on gross vehicle weight rating (GVWR), which is a rating of the vehicle's total carrying capacity. Therefore, the emission estimates do not distinguish among the different configurations.

Geographical Domain

Two major geographical components of truck activities were evaluated for this inventory:

- On-terminal operations, which include waiting for terminal entry, transiting the terminal to drop off and/or pick up cargo, and departing the terminal.
- On-road operations, which consist of travel on public roads within the SoCAB. This also includes travel on public roads within the Port boundaries and those of the adjacent Port of Long Beach (POLB).

Data and Information Acquisition

Information regarding on-terminal truck activity, such as average times and driving distances while on the terminals, was collected from terminal personnel. For on-road operations, the volumes (number of trucks), distances, and average speeds on roadway segments between defined intersections were estimated using trip generation and travel demand models that have been developed for these purposes. The trip generation model was used to develop truck trip numbers for container terminals, while the terminal interviews were used to obtain trip counts associated with non-container terminals.

Operational Profiles

Table 7.1 illustrates the range and average of reported operating characteristics of on-terminal truck activities at Port container terminals, while Table 7.2 shows similar summary data for the non-container terminals and facilities. In 2022, the total number of terminal calls associated with the Port's container terminals and non-container facilities was 4,073,373 and 523,909, respectively. The number of container terminal calls to each terminal was estimated by the trip generation model on which truck travel estimates are based, while non-container terminal calls were obtained from the terminal operators. The non-container terminal number includes activity at the Port's peel-off yard that operated in 2022, totaling approximately 148,000 calls. The peel-off yard was established to improve terminal efficiency by allowing containers off-loaded from ships to be quickly removed from the container terminal and placed in the yard, to be picked up for further transport at a later time.

Table 7.1: Summary of Reported Container Terminal Operating Characteristics

Parameter	Speed (mph)	Distance (miles)	Time on Terminal (hours)
Maximum	15	1.9	1.64
Minimum	10	0.9	1.18
Average	13	1.5	1.41

Table 7.2: Summary of Reported Non-Container Facility Operating Characteristics

Parameter	Speed (mph)	Distance (miles)	Time on Terminal (hours)
Maximum	20	1.3	0.47
Minimum	0	0.0	0.00
Average	8	0.5	0.17

Table 7.3 presents further detail on the on-terminal operating parameters provided by terminal operators, listing total estimated miles traveled and hours of idling on-terminal and waiting at entry gates. Terminals are listed by type.

Table 7.3: 2022 Estimated On-Terminal VMT and Idling Hours by Terminal

Terminal Type	Total Miles Traveled	Total Hours Idling (all trips)
Container	1,375,049	1,127,540
Container	1,334,640	1,370,230
Container	926,562	687,606
Container	888,821	683,281
Container	545,045	595,915
Container	506,496	553,769
Container	470,439	616,798
Auto	1,250	850
Break Bulk	28,000	6,300
Break Bulk	10,000	6,400
Dry Bulk	3,250	1040
Dry Bulk	1,500	450
Liquid Bulk	3000	360
Liquid Bulk	18	0
Other	148,115	66,652
Other	65,000	8,000
Other	14,829	69,698
Other	13,520	1,976
Other	1,900	3,325
Other	40	320
Total	**6,337,473**	**5,800,510**

Emissions Estimation Methodology

The emission estimating methodology for the Port's on-road truck fleet is described in Section 6 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4. HDV emission estimates were based on estimates of vehicle miles traveled (VMT), average speeds, CARB's on-road vehicle emissions model EMFAC2021, and HDV model year information specific to the San Pedro Bay Ports. The most recent version of the model, EMFAC2021, reflects CARB's current understanding of motor vehicle travel activities and their associated emission levels. A new feature of this version of the model is the ability to produce emission factors for natural gas fueled trucks in addition to the more common diesel fueled trucks.

Table 7.4 summarizes the 2022 speed-specific composite emission factors developed from the EMFAC2021 model and the model year distribution discussed below. These composite emission factors were developed using model year specific emission factors for the T7 POLA vehicle category of EMFAC2021 and reflect the use of diesel and natural gas fuel, based on evaluation of the Port's Clean Truck Program (CTP) activity records and the Port Drayage Truck Registry (PDTR).

Table 7.4: Speed-Specific Composite Exhaust Emission Factors

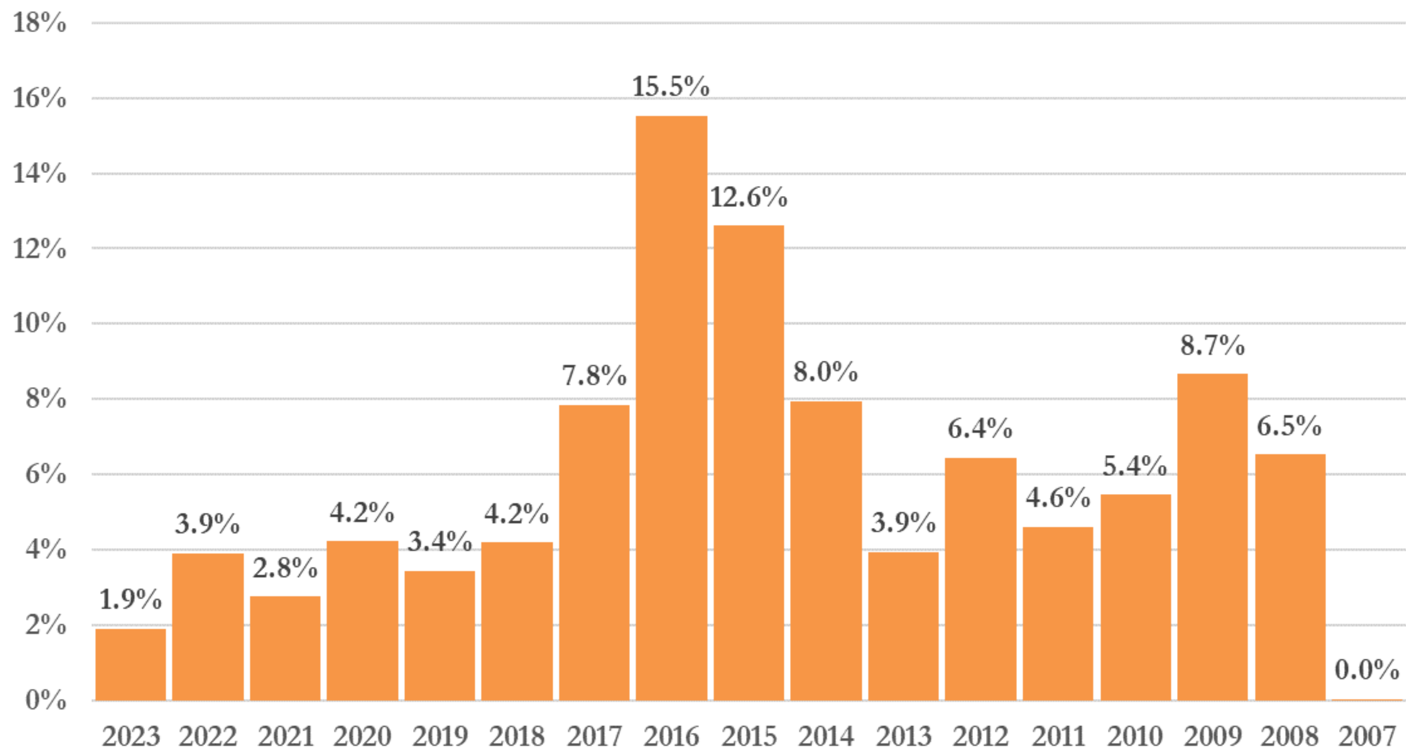
Speed range (mph)		PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2	N_2O	CH_4	Units
Idle		0.0066	0.0063	0.0038	24.0412	0.0523	33.5075	3.7761	6,284	0.9171	1.3273	g/hr
> 0	5	0.0217	0.0207	0.0213	11.0965	0.0311	3.4593	0.7537	3,517	0.5649	0.5202	g/mi
5	10	0.0193	0.0185	0.0189	8.5158	0.0267	2.7558	0.5350	3,011	0.4830	0.3437	g/mi
10	15	0.0164	0.0156	0.0161	6.0915	0.0220	2.0255	0.3387	2,467	0.3951	0.2040	g/mi
15	20	0.0145	0.0139	0.0143	4.8543	0.0193	1.5824	0.2399	2,156	0.3451	0.1443	g/mi
20	25	0.0134	0.0128	0.0132	4.0270	0.0175	1.2743	0.1808	1,955	0.3127	0.1112	g/mi
25	30	0.0132	0.0126	0.0130	3.3676	0.0162	1.0306	0.1404	1,802	0.2881	0.0901	g/mi
30	35	0.0137	0.0131	0.0136	2.8550	0.0152	0.8339	0.1112	1,684	0.2691	0.0755	g/mi
35	40	0.0149	0.0143	0.0148	2.4811	0.0144	0.6786	0.0899	1,597	0.2552	0.0649	g/mi
40	45	0.0169	0.0161	0.0168	2.2396	0.0139	0.5604	0.0743	1,541	0.2461	0.0568	g/mi
45	50	0.0195	0.0187	0.0195	2.1291	0.0137	0.4761	0.0630	1,513	0.2415	0.0506	g/mi
50	55	0.0229	0.0219	0.0228	2.1482	0.0137	0.4234	0.0550	1,514	0.2414	0.0455	g/mi
55	60	0.0271	0.0259	0.0270	2.3159	0.0141	0.4155	0.0541	1,550	0.2471	0.0455	g/mi
60	65	0.0320	0.0306	0.0319	2.6248	0.0147	0.4211	0.0560	1,617	0.2576	0.0456	g/mi
65	70	0.0320	0.0306	0.0319	2.6368	0.0147	0.4213	0.0561	1,617	0.2576	0.0456	g/mi

Model Year Distribution

Since vehicle emissions vary according to the vehicle's model year and age, the activity level of trucks within each model year is an important part of developing emission estimates. The 2022 model year distribution for the current emissions inventory was based on call data originating from radio frequency identification (RFID) data, which records information on the truck calls made to the Port of Los Angeles and the Port of Long Beach in 2022, as well as model year data drawn from the PDTR. The PDTR contains model year information on all registered drayage trucks serving the Port and the fuel type used by each truck.

The distribution of the model years of the trucks that called at both the Port and POLB terminals during 2022, which was used to develop the composite emission factors listed above, is presented in Figure 7.1. The call weighted average age of the trucks calling at San Pedro Bay Ports terminals in 2022 was approximately 7 years. The share of calls made by 2014 and newer model year trucks increased from 48% in 2021 to 64% in 2022, significantly reducing emissions of NO_x and other pollutants (see Table 9.25).

Figure 7.1: 2022 Model Year Distribution of the Heavy-Duty Truck Fleet



Emission Estimates

The estimates of 2022 HDV emissions are presented in this section. As discussed above, on-terminal emissions were based on terminal-specific information, such as the number of trucks passing through the terminal and the distance they travel on-terminal. The Port-wide totals are the sum of the terminal-specific estimates. The on-road emissions were estimated using travel demand model results to estimate how many miles in total the trucks traveled along defined roadways in the SoCAB on the way to their first cargo drop-off point. The on-terminal estimates include the sum of driving and idling emissions calculated separately. The idling emissions are likely to be somewhat over-estimated since the idling estimates were based on the entire time that trucks were on terminal (except for driving time), which does not account for times that trucks were turned off while on terminal. No data source has been identified that would provide a reliable estimate of the average percentage of time the trucks' engines were turned off while on terminal. The on-road estimates include idling emissions as a normal part of the driving cycle because the average speeds include estimates of normal traffic idling times, and the emission factors were designed to take this into account.

In order for the total emissions to be consistently displayed for each pollutant, the individual values in each table column do not, in some cases, add up to the listed total in the tables. This is due to fewer decimal places displayed for readability than were included in the calculated total.

Emission estimates for HDV activity associated with Port terminals and other facilities are presented in the following tables. Table 7.5 summarizes emissions from HDVs associated with all Port terminals.

Table 7.5: 2022 HDV Emissions

Activity Location	**Vehicle Miles Traveled**	**PM_{10}** tons	**$PM_{2.5}$** tons	**DPM** tons	**NO_x** tons	**SO_x** tons	**CO** tons	**HC** tons	**CO_2 e** tonnes
On-Terminal	6,337,473	0.2	0.2	0.1	204	0.5	230.7	27.1	56,284
On-Road	228,312,696	4.8	4.6	4.8	552	3.5	124.2	16.4	363,959
Total	**234,650,169**	**5.0**	**4.8**	**5.0**	**756**	**4.0**	**354.9**	**43.6**	**420,243**

Table 7.6 presents HDV emissions associated with container terminal activity. Table 7.7 presents HDV emissions associated with other Port terminals and facilities.

Table 7.6: 2022 HDV Emissions Associated with Container Terminals

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
On-Terminal	6,047,050	0.2	0.2	0.1	197.1	0.5	223.8	26.3	54,347
On-Road	196,724,446	4.1	4.0	4.1	476.6	3.0	107.3	14.2	313,736
Total	**202,771,496**	**4.3**	**4.1**	**4.3**	**674**	**3.5**	**331.1**	**40.5**	**368,083**

Table 7.7 presents emissions associated with other Port terminals and facilities separately.

Table 7.7: 2022 HDV Emissions Associated with Other Port Terminals

Activity Location	Vehicle Miles Traveled	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
On-Terminal	290,422	0.01	0.01	0.01	6.8	0.0	6.9	0.8	1,937
On-Road	31,588,250	0.7	0.6	0.7	75.0	0.5	16.8	2.2	50,223
Total	**31,878,673**	**0.7**	**0.7**	**0.7**	**82**	**0.5**	**23.7**	**3.1**	**52,160**

SECTION 8 SUMMARY OF 2022 EMISSION RESULTS

Table 8.1 summarizes the 2022 total maritime industry-related emissions associated with the Port of Los Angeles by category. Tables 8.2 through 8.6 present PM_{10}, $PM_{2.5}$, DPM, NO_x, and SO_x emissions in the context of Port-wide and air basin-wide emissions by source category and the more specific subcategories. Table 8.7 presents the CO_2e emissions in the context of Port-wide emissions.

Table 8.1: 2022 Emissions by Source Category

Category	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
Ocean-going vessels	66	60	43	3,369	129	360	143	271,236
Harbor craft	13	13	13	498	0	100	25	50,811
Cargo handling equipment	12	11	11	425	2	672	88	170,634
Locomotives	26	24	26	717	1	175	41	61,145
Heavy-duty vehicles	5	5	5	756	4	355	44	420,243
Total	**123**	**113**	**98**	**5,765**	**136**	**1,662**	**341**	**974,069**

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Table 8.2: 2022 PM_{10} Emissions by Category and Percent Contribution

Category	Subcategory	PM_{10}	Percent PM_{10} Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	0.7	1%	1%	0.0%
OGV	Bulk vessel	4.6	7%	4%	0.0%
OGV	Containership	31.3	48%	26%	0.1%
OGV	Cruise	17.8	27%	15%	0.0%
OGV	General cargo	1.4	2%	1%	0.0%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	1.5	2%	1%	0.0%
OGV	Tanker	8.3	13%	7%	0.0%
OGV	**Subtotal**	**66**	**100%**	**54%**	**0.1%**
Harbor Craft	Assist tug	1.7	13%	1%	0.0%
Harbor Craft	ATB and barge	2.2	16%	2%	0.0%
Harbor Craft	Harbor tug	0.7	5%	1%	0.0%
Harbor Craft	Commercial fishing	3.5	26%	3%	0.0%
Harbor Craft	Ferry	1.5	11%	1%	0.0%
Harbor Craft	Ocean tugboat	1.9	14%	2%	0.0%
Harbor Craft	Government	0.4	3%	0%	0.0%
Harbor Craft	Excursion	0.5	4%	0%	0.0%
Harbor Craft	Crewboat	0.8	6%	1%	0.0%
Harbor Craft	Work boat	0.3	2%	0%	0.0%
Harbor Craft	**Subtotal**	**13**	**100%**	**11%**	**0.0%**
CHE	RTG crane	2.0	16%	2%	0.0%
CHE	Forklift	0.2	2%	0%	0.0%
CHE	Top handler, side pick	4.1	33%	3%	0.0%
CHE	Other	1.6	13%	1%	0.0%
CHE	Yard tractor	4.4	36%	4%	0.0%
CHE	**Subtotal**	**12**	**100%**	**10%**	**0.0%**
Locomotives	Switching	0.4	2%	0%	0.0%
Locomotives	Line haul	25.8	98%	21%	0.0%
Locomotives	**Subtotal**	**26**	**100%**	**21%**	**0.0%**
HDV	On-Terminal	0.2	3%	0%	0.0%
HDV	On-Road	4.8	97%	4%	0.0%
HDV	**Subtotal**	**5**	**100%**	**4%**	**0.0%**
Port	**Total**	**123**		**100%**	**0.2%**
SoCAB AQMP	**Total**	**56,181**			

Table 8.3: 2022 $PM_{2.5}$ Emissions by Category and Percent Contribution

Category	Subcategory	$PM_{2.5}$	Percent $PM_{2.5}$ Emissions of Total: Category	Port	SoCAB AQMP
OGV	Auto carrier	0.7	1%	1%	0.0%
OGV	Bulk vessel	4.2	7%	4%	0.0%
OGV	Containership	28.8	48%	25%	0.1%
OGV	Cruise	16.4	27%	14%	0.1%
OGV	General cargo	1.3	2%	1%	0.0%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	1.3	2%	1%	0.0%
OGV	Tanker	7.7	13%	7%	0.0%
OGV	**Subtotal**	**60**	**100%**	**53%**	**0.3%**
Harbor Craft	Assist tug	1.6	13%	1%	0.0%
Harbor Craft	ATB and barge	2.1	16%	2%	0.0%
Harbor Craft	Harbor tug	0.6	5%	1%	0.0%
Harbor Craft	Commercial fishing	3.4	26%	3%	0.0%
Harbor Craft	Ferry	1.5	11%	1%	0.0%
Harbor Craft	Ocean tugboat	1.8	14%	2%	0.0%
Harbor Craft	Government	0.3	3%	0%	0.0%
Harbor Craft	Excursion	0.5	4%	0%	0.0%
Harbor Craft	Crewboat	0.7	6%	1%	0.0%
Harbor Craft	Work boat	0.3	2%	0%	0.0%
Harbor Craft	**Subtotal**	**13**	**100%**	**11%**	**0.1%**
CHE	RTG crane	1.8	16%	2%	0.0%
CHE	Forklift	0.2	2%	0%	0.0%
CHE	Top handler, side pick	3.7	33%	3%	0.0%
CHE	Other	1.4	13%	1%	0.0%
CHE	Yard tractor	4.2	37%	4%	0.0%
CHE	**Subtotal**	**11**	**100%**	**10%**	**0.1%**
Locomotives	Switching	0.4	2%	0%	0.0%
Locomotives	Line haul	23.7	98%	21%	0.1%
Locomotives	**Subtotal**	**24**	**100%**	**21%**	**0.1%**
HDV	On-Terminal	0.2	3%	0%	0.0%
HDV	On-Road	4.6	97%	4%	0.0%
HDV	**Subtotal**	**5**	**100%**	**4%**	**0.0%**
Port	**Total**	**113**		**100%**	**0.6%**
SoCAB AQMP	**Total**	**19,610**			

Table 8.4: 2022 DPM Emissions by Category and Percent Contribution

Category	Subcategory	DPM	Percent DPM Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	0.6	1%	1%	0.0%
OGV	Bulk vessel	2.9	7%	3%	0.2%
OGV	Containership	16.9	40%	17%	1.3%
OGV	Cruise	15.6	37%	16%	1.2%
OGV	General cargo	0.9	2%	1%	0.1%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	1.2	3%	1%	0.1%
OGV	Tanker	4.4	10%	5%	0.3%
OGV	**Subtotal**	**43**	**100%**	**43%**	**3.2%**
Harbor Craft	Assist tug	1.7	13%	2%	0.1%
Harbor Craft	ATB and barge	2.2	16%	2%	0.2%
Harbor Craft	Harbor tug	0.7	5%	1%	0.1%
Harbor Craft	Commercial fishing	3.5	26%	4%	0.3%
Harbor Craft	Ferry	1.5	11%	2%	0.1%
Harbor Craft	Ocean tugboat	1.9	14%	2%	0.1%
Harbor Craft	Government	0.4	3%	0%	0.0%
Harbor Craft	Excursion	0.5	4%	1%	0.0%
Harbor Craft	Crewboat	0.8	6%	1%	0.1%
Harbor Craft	Work boat	0.3	2%	0%	0.0%
Harbor Craft	**Subtotal**	**13**	**100%**	**14%**	**1.0%**
CHE	RTG crane	2.0	18%	2%	0.1%
CHE	Forklift	0.1	1%	0%	0.0%
CHE	Top handler, side pick	4.1	37%	4%	0.3%
CHE	Other	1.5	14%	2%	0.1%
CHE	Yard tractor	3.3	30%	3%	0.2%
CHE	**Subtotal**	**11**	**100%**	**11%**	**0.8%**
Locomotives	Switching	0.4	2%	0%	0.0%
Locomotives	Line haul	25.8	98%	26%	1.9%
Locomotives	**Subtotal**	**26**	**100%**	**27%**	**2.0%**
HDV	On-Terminal	0.1	3%	0%	0.0%
HDV	On-Road	4.8	97%	5%	0.4%
HDV	**Subtotal**	**5**	**100%**	**5%**	**0.4%**
Port	**Total**	**98**		**100%**	**7.3%**
SoCAB AQMP	**Total**	**1,337**			

Table 8.5: 2022 NO_x Emissions by Category and Percent Contribution

Category	Subcategory	NO_x	Percent NO_x Emissions of Total		
			Category	Port	SoCAB AQMP
OGV	Auto carrier	52.9	2%	1%	0.1%
OGV	Bulk vessel	188.9	6%	3%	0.2%
OGV	Containership	1,618.5	48%	28%	1.5%
OGV	Cruise	1,022.4	30%	18%	1.0%
OGV	General cargo	65.1	2%	1%	0.1%
OGV	Other	1.4	0%	0%	0.0%
OGV	Reefer	89.9	3%	2%	0.1%
OGV	Tanker	330.2	10%	6%	0.3%
OGV	**Subtotal**	**3,369**	**100%**	**58%**	**3.2%**
Harbor Craft	Assist tug	82.5	17%	1%	0.1%
Harbor Craft	ATB and barge	51.2	10%	1%	0.0%
Harbor Craft	Harbor tug	30.7	6%	1%	0.0%
Harbor Craft	Commercial fishing	109.5	22%	2%	0.1%
Harbor Craft	Ferry	76.0	15%	1%	0.1%
Harbor Craft	Ocean tugboat	60.7	12%	1%	0.1%
Harbor Craft	Government	10.8	2%	0%	0.0%
Harbor Craft	Excursion	25.8	5%	0%	0.0%
Harbor Craft	Crewboat	36.0	7%	1%	0.0%
Harbor Craft	Work boat	15.1	3%	0%	0.0%
Harbor Craft	**Subtotal**	**498**	**100%**	**9%**	**0.5%**
CHE	RTG crane	101.1	24%	2%	0.1%
CHE	Forklift	8.2	2%	0%	0.0%
CHE	Top handler, side pick	130.2	31%	2%	0.1%
CHE	Other	48.6	11%	1%	0.0%
CHE	Yard tractor	136.4	32%	2%	0.1%
CHE	**Subtotal**	**425**	**100%**	**7%**	**0.4%**
Locomotives	Switching	41.6	6%	1%	0.0%
Locomotives	Line haul	675.2	94%	12%	0.6%
Locomotives	**Subtotal**	**717**	**100%**	**12%**	**0.7%**
HDV	On-Terminal	204.0	27%	4%	0.2%
HDV	On-Road	551.7	73%	10%	0.5%
HDV	**Subtotal**	**756**	**100%**	**13%**	**0.7%**
Port	**Total**	**5,765**		**100%**	**5.5%**
SoCAB AQMP	**Total**	**105,337**			

Table 8.6: 2022 SO_x Emissions by Category and Percent Contribution

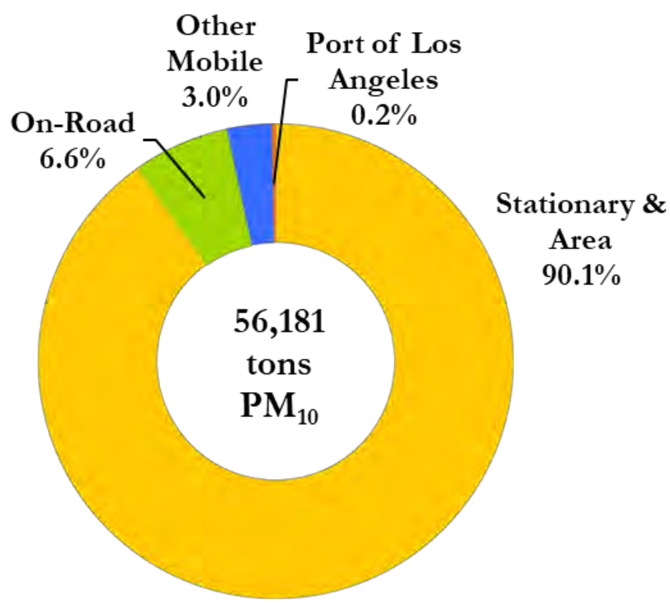
Category	Subcategory	SO_x	Percent SO_x Emissions of Total Category	Port	SoCAB AQMP
OGV	Auto carrier	0.9	1%	1%	0.0%
OGV	Bulk vessel	10.7	8%	8%	0.2%
OGV	Containership	53.3	41%	39%	1.0%
OGV	Cruise	38.5	30%	28%	0.7%
OGV	General cargo	3.3	3%	2%	0.1%
OGV	Other	0.0	0%	0%	0.0%
OGV	Reefer	3.3	3%	2%	0.1%
OGV	Tanker	18.7	15%	14%	0.3%
OGV	**Subtotal**	**129**	**100%**	**95%**	**2.3%**
Harbor Craft	Assist tug	0.1	21%	0%	0.0%
Harbor Craft	ATB and barge	0.0	8%	0%	0.0%
Harbor Craft	Harbor tug	0.0	6%	0%	0.0%
Harbor Craft	Commercial fishing	0.1	19%	0%	0.0%
Harbor Craft	Ferry	0.1	17%	0%	0.0%
Harbor Craft	Ocean tugboat	0.0	9%	0%	0.0%
Harbor Craft	Government	0.0	2%	0%	0.0%
Harbor Craft	Excursion	0.0	6%	0%	0.0%
Harbor Craft	Crewboat	0.0	7%	0%	0.0%
Harbor Craft	Work boat	0.0	5%	0%	0.0%
Harbor Craft	**Subtotal**	**0.5**	**100%**	**0%**	**0.0%**
CHE	RTG crane	0.2	12%	0%	0.0%
CHE	Forklift	0.0	1%	0%	0.0%
CHE	Top handler, side pick	0.6	33%	0%	0.0%
CHE	Other	0.2	11%	0%	0.0%
CHE	Yard tractor	0.8	44%	1%	0.0%
CHE	**Subtotal**	**2**	**100%**	**1%**	**0.0%**
Locomotives	Switching	0.1	8%	0%	0.0%
Locomotives	Line haul	0.6	92%	0%	0.0%
Locomotives	**Subtotal**	**1**	**100%**	**0%**	**0.0%**
HDV	On-Terminal	0.5	13%	0%	0.0%
HDV	On-Road	3.5	87%	3%	0.1%
HDV	**Subtotal**	**4**	**100%**	**3%**	**0.1%**
Port	**Total**	**136**		**100%**	**2.5%**
SoCAB AQMP	**Total**	**5,492**			

Table 8.7: 2022 CO_2e Emissions by Category and Percent Contribution

Category	Subcategory	CO_2e	Percent CO_2e Emissions of Total Category	Percent CO_2e Emissions of Total Port
OGV	Auto carrier	2,667.3	1%	0%
OGV	Bulk vessel	17,757.0	7%	2%
OGV	Containership	142,758.6	53%	15%
OGV	Cruise	63,411.3	23%	7%
OGV	General cargo	5,510.3	2%	1%
OGV	Other	75.5	0%	0%
OGV	Reefer	5,024.3	2%	1%
OGV	Tanker	34,032.2	13%	3%
OGV	**Subtotal**	**271,236**	**100%**	**28%**
Harbor Craft	Assist tug	10,541.7	21%	1%
Harbor Craft	ATB and barge	3,888.1	8%	0%
Harbor Craft	Harbor tug	3,257.7	6%	0%
Harbor Craft	Commercial fishing	9,709.4	19%	1%
Harbor Craft	Ferry	8,563.8	17%	1%
Harbor Craft	Ocean tugboat	4,581.1	9%	0%
Harbor Craft	Government	951.4	2%	0%
Harbor Craft	Excursion	2,995.9	6%	0%
Harbor Craft	Crewboat	3,558.7	7%	0%
Harbor Craft	Work boat	2,762.9	5%	0%
Harbor Craft	**Subtotal**	**50,811**	**100%**	**5%**
CHE	RTG crane	19,223.5	11%	2%
CHE	Forklift	2,284.8	1%	0%
CHE	Top handler, side pick	54,406.6	32%	6%
CHE	Other	17,510.5	10%	2%
CHE	Yard tractor	77,208.8	45%	8%
CHE	**Subtotal**	**170,634**	**100%**	**18%**
Locomotives	Switching	5,329.7	9%	1%
Locomotives	Line haul	55,815.0	91%	6%
Locomotives	**Subtotal**	**61,145**	**100%**	**6%**
HDV	On-Terminal	56,284.1	13%	6%
HDV	On-Road	363,959.2	87%	37%
HDV	**Subtotal**	**420,243**	**100%**	**43%**
Port	**Total**	**974,069**		**100%**

To place the maritime industry-related emissions into context, the following figures compare the Port's contributions to the total emissions in the South Coast Air Basin by major emission source category. The 2022 SoCAB emissions were based on the 2022 AQMP Appendix III,[54] except for the SoCAB on-road emission estimates which were updated to take into consideration EMFAC2021.[55] Thus, the 2022 SoCAB total emissions do not exactly match 2022 AQPM Appendix III values. It should be noted that neither the SoCAB nor the Port's on-road heavy-duty diesel PM_{10} and $PM_{2.5}$ emissions include brake and tire wear emissions. Due to rounding, the percentages may not total 100%.

Figure 8.1: 2022 PM_{10} Emissions in the South Coast Air Basin



[54] SCAQMD, *2022 AQMP Appendix III, Base & Future Year Emission Inventory*, adopted December 2022. Except on-road emissions based on EMFAC2014 are replaced with EMFAC2021 estimates. *www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan*
[55] CARB, *www.arb.ca.gov/emfac/*

Figure 8.2: 2022 $PM_{2.5}$ Emissions in the South Coast Air Basin

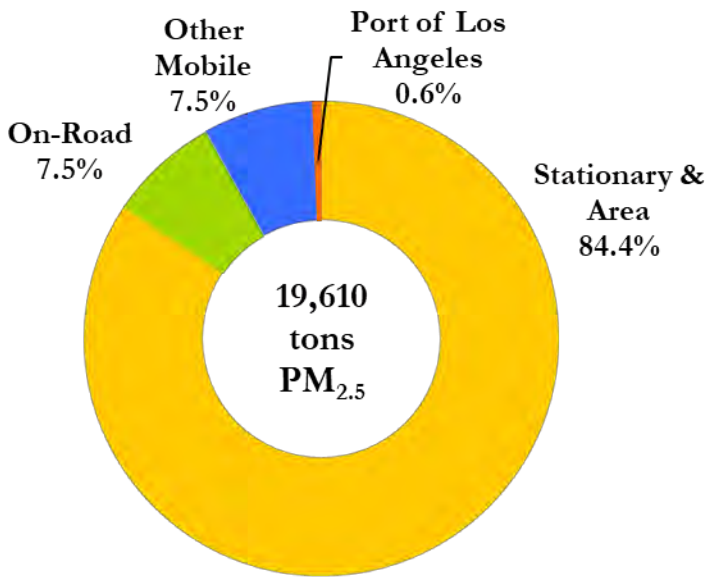


Figure 8.3: 2022 DPM Emissions in the South Coast Air Basin

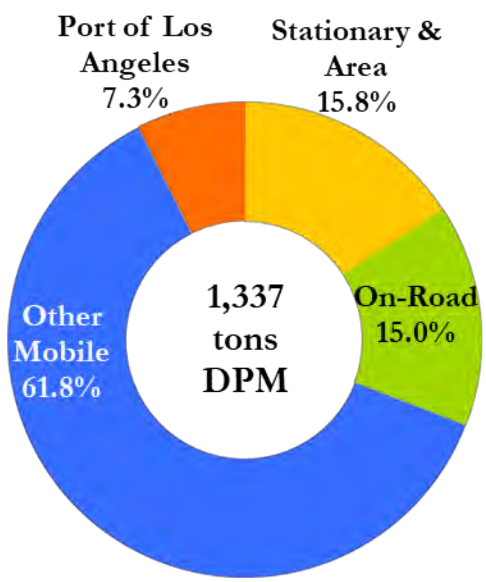


Figure 8.4: 2022 NO_x Emissions in the South Coast Air Basin

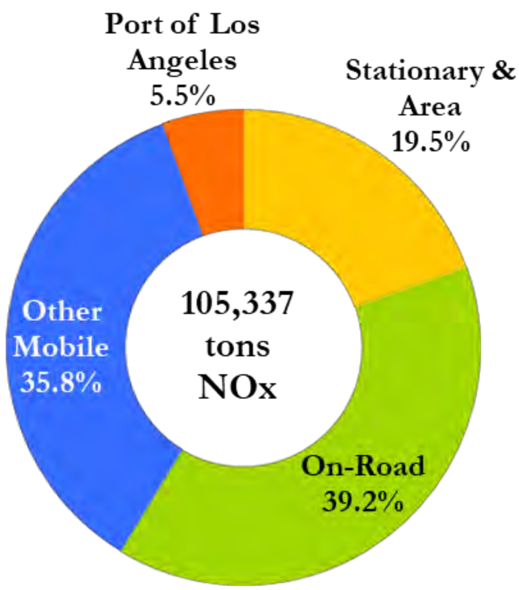
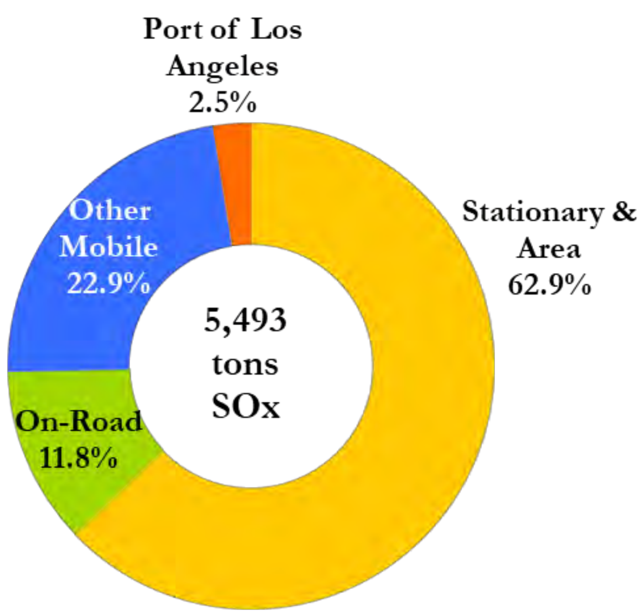


Figure 8.5: 2022 SO_x Emissions in the South Coast Air Basin



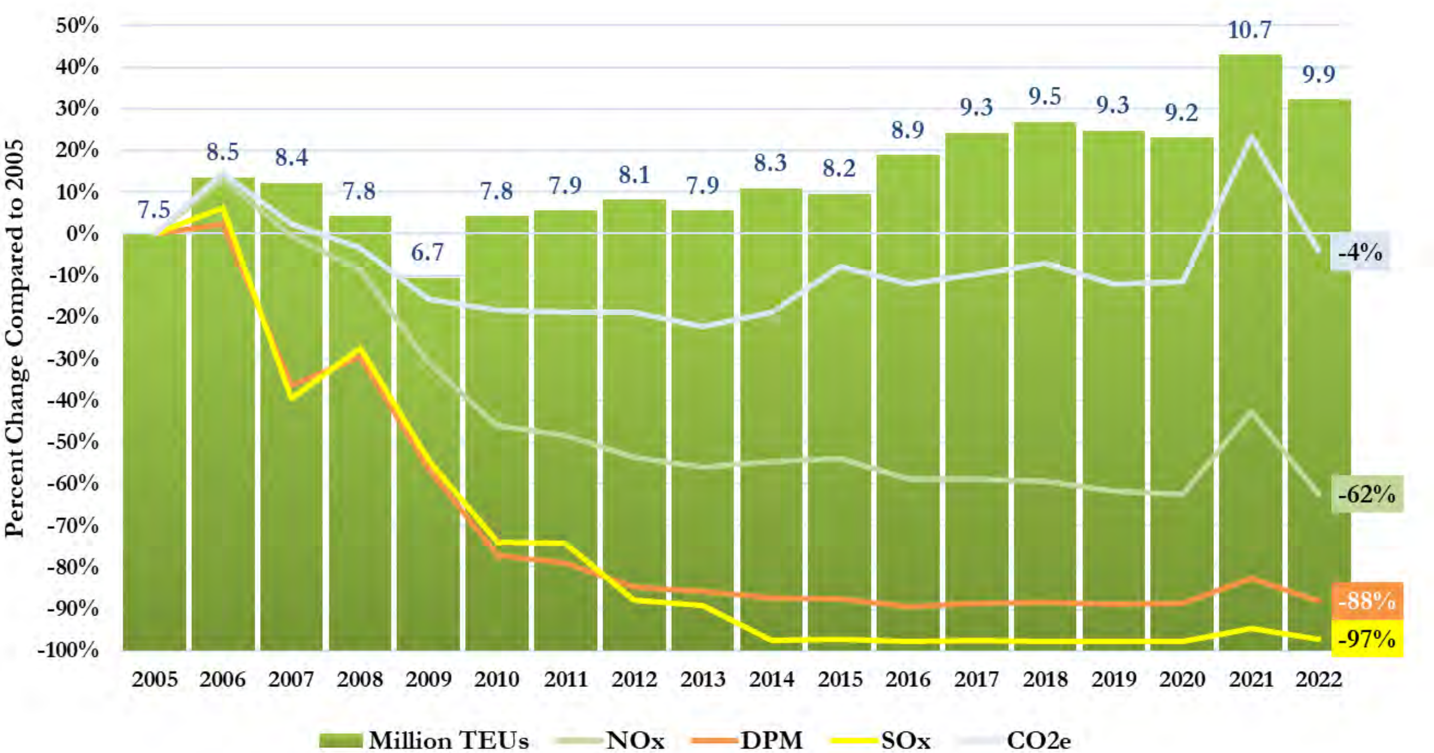
SECTION 9 COMPARISON OF 2022, 2005 AND PREVIOUS YEARS' FINDINGS AND EMISSIONS ESTIMATES

This section compares 2022 emissions to emissions in both the previous year and 2005, in terms of overall emissions and for each source category. Comparisons by emission source categories are addressed in separate subsections in table and chart formats, with the explanation of the findings and differences in emissions between years. The tables and charts in this section summarize the percent change from the previous year (2022 vs 2021) and for the CAAP Progress (2022 vs 2005) using 2022 methodology. Table 9.1 presents the port-wide emissions comparison for 2022, 2021, and 2005. Figure 9.1 illustrates the emissions trend for 2005 to 2022.

Table 9.1: Emissions Comparison

EI Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022	123	113	98	5,765	136	1,662	341	974,069
2021	189	174	143	8,796	256	2,039	475	1,253,207
2005	991	851	830	15,335	4,839	3,576	824	1,017,558
Previous Year (2021-2022)	**-35%**	**-35%**	**-31%**	**-34%**	**-47%**	**-19%**	**-28%**	**-22%**
CAAP Progress (2005-2022)	**-88%**	**-87%**	**-88%**	**-62%**	**-97%**	**-54%**	**-59%**	**-4%**

Figure 9.1: Emissions Trend



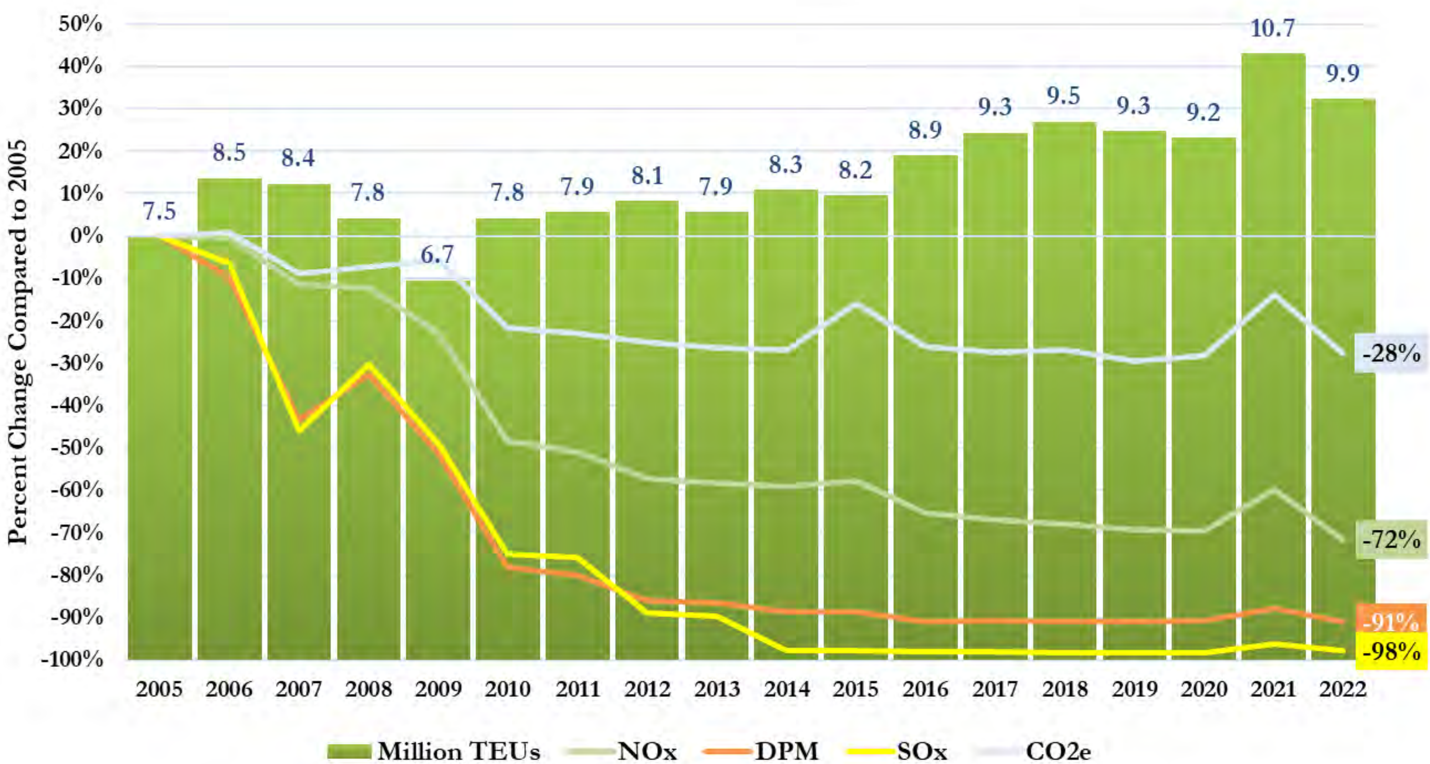
In order to measure progress of the various emission reduction goals, the Port has established metrics to track emissions per unit of work. Table 9.2 and Figure 9.2 show emissions efficiency as tons of emissions per 10,000 TEUs for total emissions. In Table 9.2, a positive percent change for the emissions efficiency comparison means an improvement in efficiency.

Table 9.2: Emissions Efficiency Metric, tons/10,000 TEUs

EI Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.124	0.114	0.099	5.82	0.14	1.68	0.34	983
2021	0.177	0.163	0.134	8.24	0.24	1.91	0.45	1,173
2005	1.324	1.138	1.108	20.49	6.46	4.78	1.10	1,360
Previous Year (2021-2022)	**30%**	**30%**	**26%**	**29%**	**42%**	**12%**	**24%**	**16%**
CAAP Progress (2005-2022)	**91%**	**90%**	**91%**	**72%**	**98%**	**65%**	**69%**	**28%**

In Figure 9.2, for illustrative purposes, a negative percent change shows the improvement from the baseline year.

Figure 9.2: Emissions Efficiency Trends



Ocean-Going Vessels

The main improvement to the OGV emissions methodology is the addition of LNG emission factors to estimate vessel emissions for those capable of switching to LNG fuel. The emissions calculation methodology and the emission rates are described in Section 2 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4.

The various emission reduction strategies implemented for ocean-going vessels are listed in Table 9.3. The table lists the percentage of all vessel calls that participated in the specific control strategy for 2022, the previous year, and 2005. The following OGV emission reductions strategies are listed:

- Shore Power[56] refers to vessel calls using shore power at berth, instead of running their diesel-powered auxiliary engines.
- VSR[57] refers to the vessels reducing their transit speed to 12 knots or lower within 20 and 40 nm of the Port.
- ESI[58] refers to the number of vessel calls that participated in the Ports' ESI program and used ship-specific low sulfur (S) fuel, which in several cases contained S levels below the regulated S level of 0.1%, resulting in additional SO_x, PM, $PM_{2.5}$, and DPM benefit.
- Engine International Air Pollution Prevention (EIAPP) certificates refer to the number of vessel calls using ship-specific NO_x emission factors for main and auxiliary engines, where vessel specific EIAPP certificates with actual NO_x rating were available through the ESI program or the VBP.

Table 9.3: Participation Rates of OGV Emission Reduction Strategies

Year	Shore Power	VSR 20 nm	VSR 40 nm	ESI Fuel	EIAPP Main Eng	EIAPP Aux Eng
2022	54%	96%	93%	54%	65%	62%
2021	45%	97%	95%	45%	65%	63%
2005	2%	65%	na	0%	5%	5%

DB ID1790

In 2022, in addition to the shore power calls listed in the table, an additional 62 vessel calls (3%) used alternative technology to comply with the CARB At-Berth Regulation. The alternative at-berth emission control technology used in 2022 was the Maritime Emissions Treatment System (METS).

[56] POLA, *www.portoflosangeles.org/environment/air-quality/alternative-maritime-power-(amp)*
[57] POLA, *www.portoflosangeles.org/environment/air-quality/vessel-speed-reduction-program*
[58] POLA, *www.portoflosangeles.org/environment/air-quality/environmental-ship-index*

Table 9.4 summarizes the percentage of calls utilizing the main engine IMO NO_x standards tiers (Tier) for 2022, the previous year, and 2005. The "No Tier" column characterizes vessels that do not have diesel engines, such as steamships or cruise ships with gas turbines. Tier I refers to calls by vessels meeting or exceeding Tier I NO_x standards (vessels constructed from 2000-2010), Tier II refers to calls by vessels meeting or exceeding Tier II NO_x standards (vessels constructed from 2011-2015), and Tier III NO_x refers to calls by vessels meeting or exceeding the IMO's Tier III standards, which are in effect in the North American ECA for vessels constructed on or after January 1, 2016. Compared to the previous year, the number of Tier III engines continues to increase as newer vessels call the Port.

Table 9.4: OGV Percentage of Calls by Main Engine Tiers

Year	IMO Tier 0	IMO Tier I	IMO Tier II	IMO Tier III	No Tier
2022	5.5%	56.5%	30.4%	7.3%	0.4%
2021	6.0%	59.6%	31.6%	2.6%	0.2%
2005	58.5%	37.3%	0.0%	0.0%	4.1%

DB ID1789

Table 9.5 presents OGV activity by engine type in terms of total energy consumption (expressed as kWh). In 2022, total energy consumption is lower than both the previous year and 2005. The kWh associated with the METS technology generators were included in the total auxiliary engine kWh shown in the table.

Main engine activity has decreased since 2005 mainly due to the VSR program and fewer vessel calls. Total energy consumption is 44% lower in 2022 as compared to 2021 due to less vessels at anchorage and less time spent at berth and anchorage.

Table 9.5: OGV Energy Consumption Comparison, kWh

Year	All Engines Total kWh	Main Eng Total kWh	Aux Eng Total kWh	Boiler Total kWh
2022	349,763,419	51,082,150	189,467,547	109,213,722
2021	622,837,755	56,669,733	353,048,289	212,412,322
2005	368,090,564	105,039,729	187,136,308	75,914,527
Previous Year (2021-2022)	**-44%**	**-10%**	**-46%**	**-49%**
CAAP Progress (2005-2022)	**-5%**	**-51%**	**1%**	**44%**

Table 9.6 compares the OGV emissions for calendar years 2022, 2021, and 2005. Reductions in OGV emissions since 2005 are mainly attributed to CARB marine fuel regulation, use of shore power, and the Port's Vessel Speed Reduction (VSR) and ESI-based incentive programs. The emissions are lower in 2022 as compared to the previous year due to 42% less anchorage calls and less time spent at berth. There were fewer vessels that called in 2022 and throughput decreased by 7% in 2022 from 2021.

Table 9.6: OGV Emissions Comparison

EI Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022	66	60	43	3,369	129	360	143	271,236
2021	127	117	83	5,956	248	605	255	504,842
2005	609	489	449	5,160	4,683	468	215	280,853
Previous Year (2021-2022)	**-48%**	**-48%**	**-49%**	**-43%**	**-48%**	**-40%**	**-44%**	**-46%**
CAAP Progress (2005-2022)	**-89%**	**-88%**	**-90%**	**-35%**	**-97%**	**-23%**	**-33%**	**-3%**

DB ID692

Table 9.7 shows the emissions efficiency changes between 2022, the previous year, and 2005. A positive percent change for the emissions efficiency comparison means an improvement in efficiency.

Table 9.7: OGV Emissions Efficiency Metric Comparison, tons/10,000 TEUs

EI Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.07	0.06	0.04	3.40	0.13	0.36	0.14	274
2021	0.12	0.11	0.08	5.58	0.23	0.57	0.24	473
2005	0.81	0.65	0.60	6.89	6.26	0.63	0.29	375
Previous Year (2021-2022)	**42%**	**45%**	**50%**	**39%**	**43%**	**37%**	**42%**	**42%**
CAAP Progress (2005-2022)	**91%**	**91%**	**93%**	**51%**	**98%**	**43%**	**52%**	**27%**

Figure 9.3 shows the count of containership calls at anchorage through the years for the Port. In 2022, the number of containerships at anchorage are 84% lower than they were in the previous year showing that congestion at the Port was reduced significantly in 2022. Figure 9.4 shows the average number of days containerships spent at anchorage. In 2022, the average was 1.8 days stay as compared to 5.5 days in 2021. The fewer vessels waiting for a berth contributed to a 94% reduction in container ship NOx emissions at anchorage, as well as overall vessel and port wide emission reductions in 2022.

Figure 9.3: Containership Number of Anchorage Calls Trend

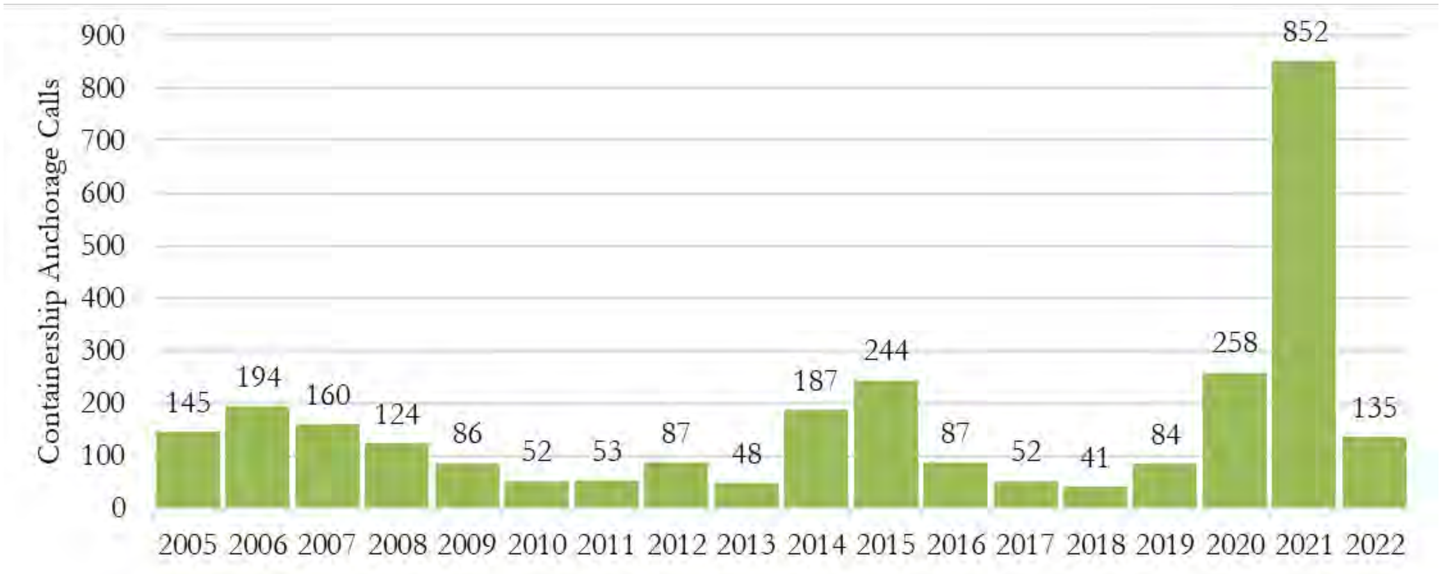
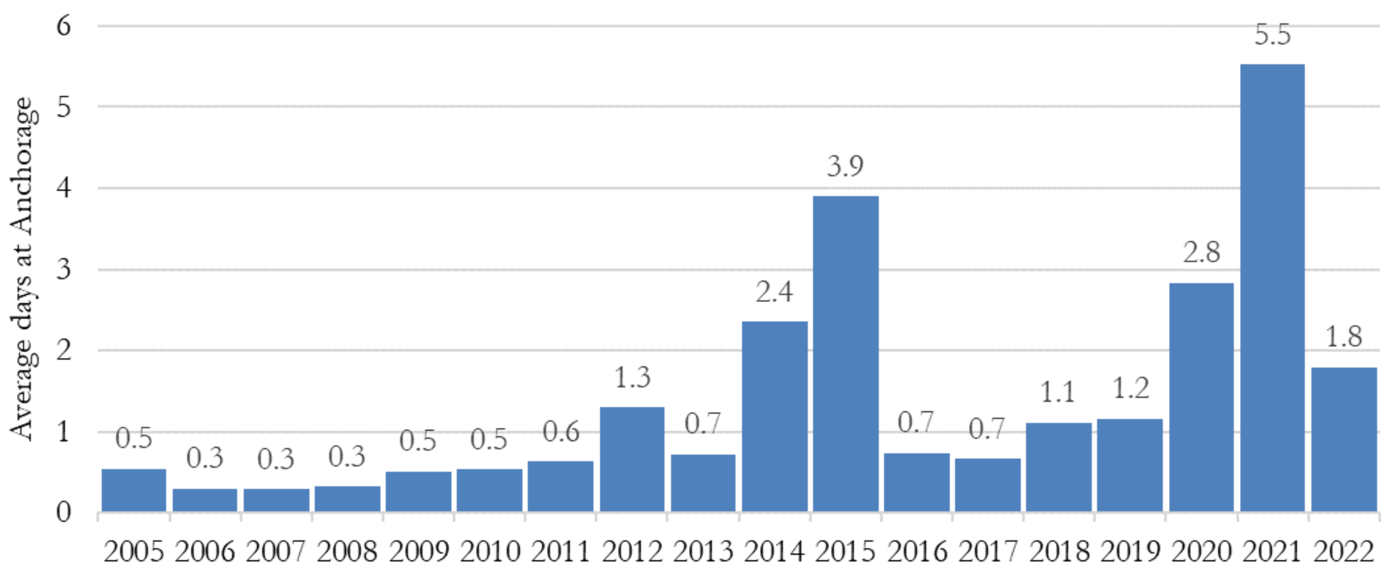


Figure 9.4: Containership Average Days at Anchorage Trend



Harbor Craft

The emissions calculation methodology used to estimate harbor craft emissions for the 2022 inventory is similar to previous years and includes the latest factors per CARB's latest methodology. Table 9.8 summarizes the percent distribution of engines based on EPA's engine standards by Tier. Tier 0 engines are unregulated engines built prior to the promulgation of the EPA emission standards. The population of Tier 0 engines is primarily made up of ATBs of which individual vessels vary from year to year since most are not home ported in the San Pedro Bay complex. The percentages in the "unknown" column represent engines missing model year, horsepower, or both.

Table 9.8: Harbor Craft Engine Distribution Comparison by Tier

Year	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4	Unknown
2022	10%	5%	27%	42%	4%	12%
2021	10%	6%	30%	39%	2%	13%
2005	16%	28%	3%	0%	0%	53%

Table 9.9 summarizes the number of harbor craft inventoried for 2022, the previous year, and 2005. Overall, the total vessel count decreased by 3% between 2022 and the previous year and decreased by 25% between 2005 and 2022. The commercial fishing vessels home berthed at the Port continues to decline in count. The excursion vessel count increased in 2022 due to the waterfront project progress allowing some vessels to return to their berths, and to fewer COVID-19 restrictions.

Table 9.9: Harbor Craft Count Comparison

Harbor Vessel Type	2022	2021	2005
Assist tug	16	17	16
ATB	13	13	na
Commercial fishing	84	95	156
Crew boat	20	21	14
Excursion	25	18	24
Ferry	8	8	7
Government	13	13	26
Ocean tug	6	6	7
Tugboat	20	20	21
Work boat	10	10	14
Total	**215**	**221**	**285**

Table 9.10 summarizes the overall harbor craft activity in million kWh by vessel type, which decreased 5% in 2022 as compared to the previous year. Compared to 2005, the harbor craft activity increased by 15%. Assist tug, commercial fishing, crew boat, and ocean tugs activity decreased in 2022 as compared to the previous year. The crew boat activity decrease is likely due to the decrease in vessel activity at anchorage in 2022 as compared to 2021 and therefore less trips to anchorage for the crew and supply boats in 2022. Ferry and tugboat activity increased in 2022 as compared to the previous year.

Table 9.10: Harbor Craft Activity by Vessel Type, million kWh

Vessel Type	2022	2021	2005
Assist Tug	15.0	15.5	13.8
ATB	4.9	5.3	2.8
ATB barge engines	0.5	0.7	0.1
Commercial Fishing	13.5	15.1	14.1
Crew boat	4.9	6.5	1.8
Excursion	4.1	4.1	8.2
Ferry	12.2	11.0	9.3
Government	1.3	1.3	2.0
Ocean Tug	6.5	7.5	2.4
Tugboat	4.6	3.9	6.5
Work boat	3.9	3.8	1.4
Total	**71.4**	**74.9**	**62.2**

Table 9.11 shows the harbor craft energy consumption (kWh) comparison by engine tier for calendar years 2022, 2021, and 2005.

Table 9.11: Harbor Craft Energy Consumption Comparison by Engine Tier, kWh

Engine Tier	2022 % of Total	2021 % of Total	2005 % of Total
Tier 0	8%	12%	52%
Tier 1	7%	6%	46%
Tier 2	34%	42%	2%
Tier 3	37%	35%	0%
Tier 4	13%	6%	0%
Total	**100%**	**100%**	**100%**

Table 9.12 shows the emissions comparisons for calendar years 2022, 2021, and 2005 for harbor craft. In 2022, emissions decreased as compared to the previous year. A decrease in overall kWh combined with the shift in energy consumptions to Tier 3 and Tier 4 vessels resulted in lower harbor craft emissions in 2022.

Table 9.12: Harbor Craft Emission Comparison

Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022	13	13	13	498	0.5	100	25	50,811
2021	15	15	15	565	0.5	112	29	53,521
2005	33	32	33	706	4.1	209	49	44,996
Previous Year (2021-2022)	**-13%**	**-12%**	**-13%**	**-12%**	**-5%**	**-11%**	**-12%**	**-5%**
CAAP Progress (2005-2022)	**-60%**	**-60%**	**-60%**	**-29%**	**-88%**	**-52%**	**-48%**	**13%**

DB ID427

Table 9.13 shows the emissions efficiency changes in 2022 as compared to the previous year and 2005. It should be noted that total harbor craft emissions were used for this efficiency comparison although emissions from several harbor craft types (e.g., commercial fishing vessels) are not dependent on container throughput. A positive percent for the emissions efficiency comparison means an improvement in efficiency.

Table 9.13: Harbor Craft Emissions Efficiency Metric Comparison, tons/10,000 TEUs

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.01	0.01	0.01	0.50	0.000	0.10	0.03	51
2021	0.01	0.01	0.01	0.53	0.000	0.11	0.03	50
2005	0.04	0.04	0.04	0.94	0.005	0.28	0.07	60
Previous Year (2021-2022)	**0%**	**0%**	**0%**	**5%**	**100%**	**4%**	**4%**	**-2%**
CAAP Progress (2005-2022)	**68%**	**77%**	**68%**	**47%**	**100%**	**64%**	**60%**	**15%**

Cargo Handling Equipment

The methodology used to estimate CHE emissions for the 2022 inventory was updated in 2022. Emissions for 2021 and 2005 were re-estimated using the 2022 methodology. The emissions calculation methodology and the emission rates are described in Section 4 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4.

Table 9.14 shows that the number of units of cargo handling equipment remained relatively the same and the overall energy consumption decreased by 7% in 2022 as compared to the previous year. Energy consumption is measured as total kWh, the product of the rated engine size in kW, annual operating hours, and load factors.

From 2005 to 2022, equipment count was 8% higher, with a 30% increase in activity level to handle the 32% increase in TEU throughput.

Table 9.14: CHE Count and Activity Comparison

Year	Count	Energy Consumption kWh	TEU	Activity (kWh) per TEU
2022	1,932	224,291,814	9,911,159	22.6
2021	1,926	240,696,329	10,677,610	22.5
2005	1,782	173,108,402	7,484,624	23.1
Previous Year (2021-2022)	**0%**	**-7%**	**-7%**	**0%**
CAAP Progress (2005-2022)	**8%**	**30%**	**32%**	**-2%**

Table 9.15 summarizes the numbers of cargo handling equipment using various engine and power types, including electric, LNG, diesel, propane, and gasoline. Compared to the previous year, the equipment counts remained relatively the same. Hybrid RTG cranes and straddle carriers are included in the diesel count.

Table 9.15: Count of CHE Equipment Type

Equipment	Electric	LNG	Propane	Gasoline	Diesel	Total
2022						
Forklift	33	0	176	6	96	311
Wharf crane	87	0	0	0	0	87
RTG crane	0	0	0	0	101	101
Straddle carrier	0	0	0	0	110	110
Top handler	2	0	0	0	215	217
Yard tractor	5	22	127	0	769	923
Other	37	0	1	4	141	183
Total	**164**	**22**	**304**	**10**	**1,432**	**1,932**
	8.5%	**1.1%**	**15.7%**	**0.5%**	**74.1%**	
2021						
Forklift	28	0	180	6	100	314
Wharf crane	88	0	0	0	0	88
RTG crane	0	0	0	0	102	102
Straddle carrier	0	0	0	0	110	110
Top handler	2	0	0	0	205	207
Yard tractor	5	22	158	0	737	922
Other	39	0	1	4	139	183
Total	**162**	**22**	**339**	**10**	**1,393**	**1,926**
	8.4%	**1.1%**	**17.6%**	**0.5%**	**72.3%**	
2005						
Forklift	0	0	263	8	151	422
Wharf crane	67	0	0	0	0	67
RTG crane	0	0	0	0	98	98
Straddle carrier	0	0	0	0	0	0
Top handler	0	0	0	0	127	127
Yard tractor	0	0	53	0	848	901
Other	12	0	0	3	152	167
Total	**79**	**0**	**316**	**11**	**1,376**	**1,782**
	4.4%	**0.0%**	**17.7%**	**0.6%**	**77.2%**	

DB ID235

Table 9.16 summarizes the number and percentage of diesel-powered CHE with various emission controls by equipment type in 2022, the previous year, and 2005. The emission controls for CHE include:

- Hybrid equipment
- On-road engines (CHE equipped with on-road certified engines instead of off-road engines)
- DPF retrofits
- ULSD with a maximum sulfur content of 15 ppm
- Renewable diesel
- ULSD with a maximum sulfur content of 15 ppm

For 2022, more terminals continued to switch to renewable diesel as it became more widely available.

Table 9.16: Count of CHE Diesel Equipment Emissions Control Matrix

Equipment	Hybrid	On-Road Engines	DPF Retrofit	ULSD Fuel	Renewable Diesel	Total Diesel Equipment	% of Diesel Powered Equipment Hybrid	On-Road Engines	DPF Retrofit	ULSD Fuel	Renewable Diesel
2022											
Forklift	0	0	28	27	69	96	0%	0%	29%	28%	72%
RTG crane	15	0	39	38	63	101	15%	0%	39%	38%	62%
Straddle carrier	82	0	0	0	110	110	75%	0%	0%	0%	100%
Top handler	0	0	57	67	148	215	0%	0%	27%	31%	69%
Yard tractor	0	646	4	206	563	769	0%	84%	1%	27%	73%
Sweeper	0	0	1	1	5	6	0%	0%	17%	17%	83%
Other	0	13	36	79	56	135	0%	10%	27%	59%	41%
Total	**97**	**659**	**165**	**418**	**1,014**	**1,432**	**7%**	**46%**	**12%**	**29%**	**71%**
2021											
Forklift	0	0	32	92	8	100	0%	0%	32%	92%	8%
RTG crane	16	0	39	75	27	102	16%	0%	38%	74%	26%
Straddle carrier	82	0	0	70	40	110	75%	0%	0%	64%	36%
Top handler	0	0	60	143	62	205	0%	0%	29%	70%	30%
Yard tractor	0	617	4	465	272	737	0%	84%	1%	63%	37%
Sweeper	0	0	1	5	1	6	0%	0%	17%	83%	17%
Other	0	12	37	102	31	133	0%	9%	28%	77%	23%
Total	**98**	**629**	**173**	**952**	**441**	**1,393**	**7%**	**45%**	**12%**	**68%**	**32%**
2005											
Forklift	0	0	0	27	0	151	2%	0%	0%	18%	0%
RTG crane	0	0	0	36	0	98	0%	0%	0%	37%	0%
Straddle carrier	0	0	0	16	0	41	34%	0%	0%	39%	0%
Top handler	0	0	0	79	0	127	38%	0%	0%	62%	0%
Yard tractor	0	164	0	483	0	848	61%	19%	0%	57%	0%
Sweeper	0	0	0	0	0	8	0%	0%	0%	0%	0%
Other	0	1	0	65	0	103	0%	1%	0%	63%	0%
Total	**0**	**165**	**0**	**706**	**0**	**1,376**	**43%**	**12%**	**0%**	**51%**	**0%**

Table 9.17 compares the total number of cargo handling equipment with off-road diesel engines (meeting Tier 0, 1, 2, 3, 4i, and 4f off-road diesel engine standards) and those equipped with on-road diesel engines for 2022, 2021, and 2005. Since classification of engine standards are based on the engine's model year and horsepower, equipment with missing horsepower or model year information were listed separately under the "Unknown Tier" column in this table. The unknown tier accounts for 2% of diesel equipment in 2022.

Implementation of the CAAP's CHE measure and CARB's CHE regulation have resulted in a steady increase in the prevalence of newer and cleaner equipment (i.e., primarily Tier 4f and on-road engines) replacing the older and higher-emitting equipment (Tier 0 to Tier 3). In 2022, the number of Tier 4f engines and on-road engines continues to increase from the previous year.

Table 9.17: Count of CHE Diesel Engine Tier and On-road Engine

Year	Tier 0	Tier 1	Tier 2	Tier 3	Tier 4i	Tier 4f	On-road Engine	Unknown Tier	Total Diesel Engines
2022	7	8	72	79	160	418	659	29	1,432
2021	9	9	75	89	164	390	629	28	1,393
2005	256	582	360	0	0	0	165	13	1,376
Previous Year	**-22%**	**-11%**	**-4%**	**-11%**	**-2%**	**7%**	**5%**	**4%**	**3%**
CAAP Progress	**-97%**	**-99%**	**-80%**	**NA**	**NA**	**NA**	**299%**	**123%**	**4%**

DB ID878

Table 9.18 shows the distribution of equipment energy consumption (kWh) comparison by engine type.

Table 9.18: Distribution of CHE Energy Consumption by Engine Type, %

Engine Type	Engine Tier	2022 % of Total	2021 % of Total	2005 % of Total
Diesel	Tier 0	0.3%	0.2%	11.0%
Diesel	Tier 1	0.1%	0.1%	39.3%
Diesel	Tier 2	4.9%	5.1%	31.2%
Diesel	Tier 3	5.7%	6.1%	0.0%
Diesel	Tier 4i	14.6%	15.0%	0.0%
Diesel	Tier 4f	33.4%	29.3%	0.0%
Diesel	Onroad engines	33.7%	37.1%	12.0%
Gasoline		0.1%	0.1%	0.3%
Propane		6.5%	6.8%	6.2%
LNG		0.8%	0.1%	0.0%

Table 9.19 shows the cargo handling equipment emissions comparisons for 2022, the previous year, and 2005. Compared to the previous year, emissions were lower due to less activity as a result of the decrease in TEU throughput.

The reductions in 2022 emissions compared to 2005 emissions are largely due to the implementation of the Port's CHE measures and CARB's CHE regulation aimed at lowering criteria pollutants. The efforts resulted in the introduction of newer equipment with cleaner engines and the installation of emission controls. The increase in CO_2e is mainly due to the 30% increase in energy consumption in 2022 as compared to 2005.

Table 9.19: CHE Emissions Comparison

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
	tons	tons	tons	tons	tons	tons	tons	tonnes
2022	12.3	11.4	10.9	424.5	1.9	671.8	88.1	170,634
2021	13.3	12.4	11.8	481.4	2.0	779.1	97.1	184,816
2005	43.6	40.2	42.6	1,449.1	9.4	797.4	103.6	134,630
Previous Year (2021-2022)	**-8%**	**-8%**	**-8%**	**-12%**	**-7%**	**-14%**	**-9%**	**-8%**
CAAP Progress (2005-2022)	**-72%**	**-72%**	**-74%**	**-71%**	**-80%**	**-16%**	**-15%**	**27%**

DB ID237

Table 9.20 shows the emissions efficiency changes in 2022 from 2005 and the previous year. A positive percentage change for the emissions efficiency comparison means an improvement in efficiency with respect to a particular pollutant.

Table 9.20: CHE Emissions Efficiency Metric Comparison, tons/10,000 TEUs

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.012	0.011	0.011	0.428	0.002	0.678	0.089	172
2021	0.012	0.012	0.011	0.451	0.002	0.730	0.091	173
2005	0.058	0.054	0.057	1.936	0.013	1.065	0.138	180
Previous Year (2021-2022)	**1%**	**1%**	**0%**	**5%**	**0%**	**7%**	**2%**	**0%**
CAAP Progress (2005-2022)	**79%**	**79%**	**81%**	**78%**	**85%**	**36%**	**36%**	**4%**

Locomotives

The methodology used to estimate locomotive emissions in this 2021 inventory is the same as that used in the previous year inventory. The emissions calculation methodology and the emission rates are described in Section 5 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4.

Table 9.21 shows the throughput comparisons for locomotives for 2022, the previous year, and 2005.

Table 9.21: Throughput Comparison, million TEUs

Throughput	2005	2021	2022
Total	7.48	10.68	9.91
On-dock lifts	1.02	1.27	1.20
On-dock TEUs	1.84	2.28	2.16
% On-Dock	25%	21%	22%

Table 9.22 shows the locomotive emission estimates for calendar years 2022, 2021, and 2005.

Table 9.22: Locomotive Emission Comparison

Year	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022	26	24	26	717	0.7	175	41	61,145
2021	27	25	27	751	0.7	187	42	65,216
2005	57	53	57	1,712	98.0	237	89	82,201
Previous Year (2021-2022)	**-3%**	**-3%**	**-3%**	**-5%**	**-6%**	**-6%**	**-3%**	**-6%**
CAAP Progress (2005-2022)	**-54%**	**-55%**	**-54%**	**-58%**	**-99%**	**-26%**	**-54%**	**-26%**

DB ID428

Compared to 2005, the decrease in emissions were due to PHL's and UP's fleet turnover to ultra-low emissions switching locomotives, the use of ULSD, the Class 1 railroads' compliance with the MOU, and introduction of newer locomotives. CO_2e emissions have been reduced since 2005 despite the increase in rail throughput through the freight movement efficiency improvements implemented by the railroads and terminals.

The decreases in emissions from 2021 to 2022 were due primarily to decreases in the line haul fleet composite emission factors resulting from line haul fleet mix improvement. These decreases offset the increase in the number of containers moved by on-dock rail (on-dock lifts). Also contributing was a decrease in the throughput of the Intermodal Container Transfer Facility (ICTF).

Table 9.23 shows the emissions efficiency changes in 2022 from the previous year and from 2005. A positive percentage for the emissions efficiency comparison indicates an improvement in efficiency. For locomotive emissions efficiency, the on-dock lifts were used as opposed to TEU throughput, since this is a more direct way to measure efficiency for the locomotives. For the CAAP progress (2022 vs. 2005) and previous year (2022 vs. 2021), emissions efficiencies have improved for all pollutants.

Table 9.23: Locomotive Emissions Efficiency Comparison, tons/10,000 on-dock lifts

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.21	0.19	0.21	5.66	0.01	1.38	0.32	482
2021	0.23	0.21	0.23	6.42	0.01	1.60	0.36	558
2005	0.56	0.52	0.56	16.75	0.96	2.32	0.87	804
Previous Year (2021-2022)	**10%**	**10%**	**10%**	**12%**	**17%**	**13%**	**11%**	**14%**
CAAP Progress (2005-2022)	**63%**	**63%**	**63%**	**66%**	**100%**	**40%**	**63%**	**40%**

Heavy-Duty Vehicles

The methodology used to estimate HDV emissions in this 2022 inventory is the same as the methodology used in the previous year inventory. The latest version of CARB's emission estimating model, EMFAC2021, has been used for the 2022 estimates. The emissions calculation methodology and the emission rates are described in Section 6 of the San Pedro Bay Ports Emissions Inventory Methodology Report Version 4.

Table 9.24 shows the total port-wide idling time based on an improved source of data regarding the time spent by trucks while on terminal (turn time) which, as noted previously, relates to time that may not solely be time spent idling. Total idling decreased 1% as compared to the previous year. The 92% increase in idling since 2005 may be due in part to the 32% increase in TEU throughput, which resulted in more truck trips, in addition to improved and more accurate data sources. Continued improvement in data sources may provide more information regarding actual on-terminal idling times (as opposed to turn times).

Table 9.24: HDV Idling Time Comparison, hours

EI Year	Total Idling Time (hours)
2022	5,800,510
2021	5,847,109
2005	3,017,252
Previous Year (2021-2022)	**-1%**
CAAP Progress (2005-2022)	**92%**

Figure 9.5 illustrates the HDV model year distribution for calendar years 2019 to 2022. It shows model year 2016 trucks have become dominant for the first time replacing 2009 MY that was dominant in previous years but was declining in number.

Figure 9.5: HDV Model Year Distribution

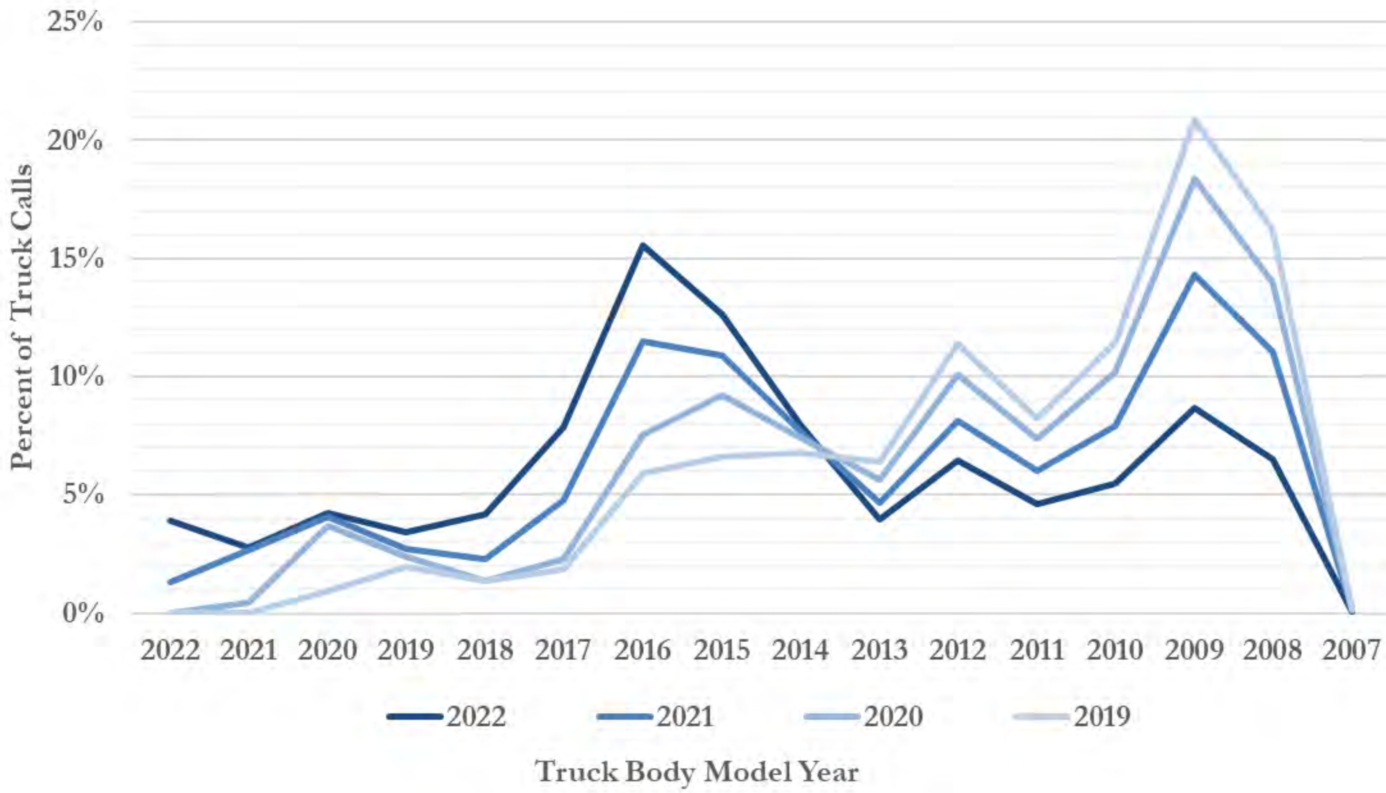


Table 9.25 summarizes the average age of the truck fleet in 2022, the previous year, and 2005. The average age of the trucks visiting the Port is seven years in 2022, remaining the same age as the two previous years. But the share of mileage driven by 2014 and newer model year trucks increased from 48% in 2021 to 64% in 2022, significantly reducing emissions of NO_x and other pollutants.

Table 9.25: HDV Fleet Weighted Average Age, years

Calendar Year	Call-Weighted Average Age (years)	Truck calls 2014 & newer (%)
2005	11.2	0%
2021	7.8	48%
2022	7.4	64%

Table 9.26 summarizes the HDV emissions for 2022, the previous year, and 2005. The HDV emissions of all pollutants have decreased significantly from 2005 largely due to increasingly stringent on-road engine emission standards and the implementation of the CTP. Emissions are lower in 2022 compared to 2021 due to lower throughput and the continued fleet turnover which lowered the fleet composite emission factors, especially of PM and NO_x.

Table 9.26: HDV Emissions Comparison

Year	VMT	PM_{10} tons	$PM_{2.5}$ tons	DPM tons	NO_x tons	SO_x tons	CO tons	HC tons	CO_2e tonnes
2022	234,650,169	5.0	4.8	5.0	756	4.0	355	44	420,243
2021	245,454,587	6.0	5.8	6.0	1,042	4.2	356	52	444,814
2005	266,434,761	248	238	248	6,307	45	1,865	368	474,877
Previous Year	**-4%**	**-18%**	**-17%**	**-17%**	**-27%**	**-6%**	**0%**	**-17%**	**-6%**
CAAP Progress	**-12%**	**-98%**	**-98%**	**-98%**	**-88%**	**-91%**	**-81%**	**-88%**	**-12%**

As an overall measure of the changes in HDV emissions independent of fluctuations in throughput, Table 9.27 illustrates the changes in emissions in average grams per mile (g/mi) between 2005 and 2022 and between 2021 and 2022. The unit of grams per mile was used because it shows the changes in emissions independent of variations in throughput, which can complicate the comparisons. The values were calculated by dividing overall HDV emissions by overall miles traveled and include idling emissions, as well as emissions from driving at various speeds, on-terminal and on-road. Particulate emissions have been reduced most dramatically from 2005 to 2022, followed by the other pollutants. The CTP and engine emission standards are responsible for most reductions, including the particulate and NO_x decreases, while fuel sulfur standards, specifically the introduction of ultra-low sulfur diesel fuel (ULSD), are responsible for the SO_x reduction.

Table 9.27: HDV Fleet Average Emissions, g/mile

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.0192	0.0184	0.0191	2.921	0.0153	1.3720	0.1685	1,791
2021	0.0223	0.0214	0.0222	3.851	0.0156	1.3149	0.1935	1,812
2005	0.8457	0.8091	0.8457	21.476	0.1529	6.3487	1.2536	1,782
Previous Year	**-14%**	**-14%**	**-14%**	**-24%**	**-2%**	**4%**	**-13%**	**-1%**
CAAP Progress	**-98%**	**-98%**	**-98%**	**-86%**	**-90%**	**-78%**	**-87%**	**0%**

Table 9.28 shows the emissions efficiency changes for HDVs. A positive percentage for the emissions efficiency comparison means an improvement in efficiency. HDV emissions efficiency has improved for most pollutants. Emissions of CO and HC are not strongly affected by new-model standards that reduce emissions of other pollutants, and they can also vary widely by speed, so differences in average speeds between years can affect the comparisons of CO and HC.

Table 9.28: HDV Emissions Efficiency Metrics Comparison, tons/10,000 TEUs

Year	PM_{10}	$PM_{2.5}$	DPM	NO_x	SO_x	CO	HC	CO_2e
2022	0.0050	0.0048	0.0050	0.763	0.004	0.36	0.04	424
2021	0.0057	0.0054	0.0056	0.976	0.004	0.33	0.05	416
2005	0.3318	0.3175	0.3318	8.427	0.060	2.49	0.49	634
Previous Year	**12%**	**11%**	**11%**	**22%**	**0%**	**-9%**	**20%**	**-2%**
CAAP Progress	**99%**	**99%**	**99%**	**91%**	**93%**	**86%**	**92%**	**33%**

CAAP Standards and Progress

One of the main purposes of the annual inventories is to provide a progress update on achieving the CAAP's San Pedro Bay Standards. These standards consist of the following emission reduction goals, compared to the 2005 inventories:

- Emission Reduction Standard:
  - By 2023, achieve emission reductions of 77% for DPM, 59% for NO_x, and 93% for SO_x
- Health Risk Reduction Standard: 85% reduction by 2020

Due to the many emission reduction measures undertaken by the Port, as well as statewide and federal regulations and standards, the 2023 emission reduction standards were met in 2022 for DPM, NO_x, and SO_x. Table 9.29 is a summary of DPM, NO_x, and SO_x percent reductions as compared to the 2023 emission reduction standards.

Table 9.29: Reductions as Compared to 2023 Emission Reduction Standard

Pollutant	2022 Actual Reductions	2023 Emission Reduction Standard
DPM	-88%	77%
NO_x	-62%	59%
SO_x	-97%	93%

Tables 9.30 through 9.32 show the standardized estimates of DPM, NO_x, and SO_x emissions by source category for calendar years 2022, the previous year, and 2005 using current year methodology. The tables also present the percent reduction of emissions from 2005 levels.

Table 9.30: DPM Emissions Comparison by Source Category, tons

Category	2005	2021	2022
Ocean-going vessels	449	83	43
Harbor Craft	33	15	13
Cargo handling equipment	43	12	11
Locomotives	57	27	26
Heavy-duty vehicles	248	6	5
Total	**830**	**143**	**98**
Emission Reduction, %		**-83%**	**-88%**

The tables present the percent reduction of emissions from 2005 levels for 2021 and 2022. For NO_x emissions, there was a 62% reduction from baseline 2005 in 2022 and a large improvement from the previous year.

Table 9.31: NO_x Emissions Comparison by Source Category, tons

Category	2005	2021	2022
Ocean-going vessels	5,160	5,956	3,369
Harbor Craft	706	565	499
Cargo handling equipment	1,449	481	425
Locomotives	1,712	751	717
Heavy-duty vehicles	6,307	1,042	756
Total	**15,335**	**8,796**	**5,765**
Emission Reduction, %		**-43%**	**-62%**

Table 9.32: SO_x Emissions Comparison by Source Category, tons

Category	2005	2021	2022
Ocean-going vessels	4,683	248	129
Harbor Craft	4	1	0
Cargo handling equipment	9	2	2
Locomotives	98	1	1
Heavy-duty vehicles	45	4	4
Total	**4,839**	**256**	**136**
Emission Reduction, %		**-95%**	**-97%**

APPENDIX A: CHE Inventory

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2418	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2301	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2381	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2221	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2307	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1961	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2347	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2150	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2027	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1631	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1338	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1998	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2196	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2062	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2216	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	1928	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	961	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2361	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2467	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2491	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2402	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2527	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2366	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2421	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2315	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2869	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 4+	Electric				0	2150	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 5.0	Electric				0	1992	CHE Electric					
Automatic Stacking Crane	Kalmar	ASC 5.0	Electric				0	1586	CHE Electric					
Bulldozer	Caterpillar	D8T	Diesel	Caterpillar	C15	2006	310	467	CHE Diesel					
Bulldozer	Caterpillar	D6R	Diesel	Caterpillar	C9	2007	200	143	CHE Diesel		5/15/2011			
Bulldozer	Caterpillar	D6R	Diesel	Caterpillar	C9	2007	200	313	CHE Diesel		5/7/2015			
Cone Vehicle	Motrec	RR662SD	Diesel			2014	35	2326	CHE Diesel				6/1/2021	
Cone Vehicle	Motrec	RR662SD	Diesel			2010	35	2833	CHE Diesel		1/1/2014		6/1/2021	
Cone Vehicle	Motrec	RR662SD	Diesel			2010	35	0	CHE Diesel		1/1/2014		6/1/2021	
Cone Vehicle	Motrec	RR662SD	Diesel			2010	35	2193	CHE Diesel		1/1/2014		6/1/2021	
Cone Vehicle	Motrec	RR662SD	Diesel			2014	35	3476	CHE Diesel				6/1/2021	
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	9	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	69	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	178	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	21	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	46	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	1	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	6	CHE Diesel					4/1/2021
Cone Vehicle	Motrec	RR-662	Diesel	Kubota Corp	V1505-ET04	2015	35	6	CHE Diesel					4/1/2021
Cone Vehicle	MEC	IBZ	Diesel	Kubota	D1105E	2013	25	1428	CHE Diesel					
Cone Vehicle	MEC	IBZ	Diesel	Kubota	D1105E	2013	25	379	CHE Diesel					
Cone Vehicle	MEC	IBZ	Diesel	Kubota	D1105E	2013	25	2171	CHE Diesel					
Cone Vehicle	MEC	IBZ	Diesel	Kubota	D1105E	2013	25	1316	CHE Diesel					
Cone Vehicle	MEC	IBZ	Diesel	Kubota	D1105E	2013	25	1748	CHE Diesel					
Cone Vehicle	MEC	IBZ	Diesel	Kubota	D1105E	2013	25	695	CHE Diesel					
Cone Vehicle	MEC	IBZ MKII	Diesel	Kubota	D1105EF	2015	25	1178	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	3	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	3	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	3	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	3	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	3	CHE Diesel					
Cone Vehicle	MOTREC	MX-700	Diesel	Kubota	D902-EF01	2021	25	3	CHE Diesel					
Crane	Grove	RT890E	Diesel	Cummins	QSB6.7	2012	300	633	CHE Diesel					
Crane	Tadano	GR900XL	Diesel	Cummins	QSB6.7	2016	367	73	CHE Diesel					
Crane	Grove	RT855B	Diesel	Caterpillar	3116	1995	205	197	CHE Diesel					
Crane	Liebherr	LHM550	Diesel	Liebherr	D9512A7-04	2014	751	1033	CHE Diesel					
Crane	Terex	RT550	Diesel	Cummins	6bta5.9	2003	174	184	CHE Diesel					
Crane	Terex	RT230	Diesel	Cummins	6BT5.9	2004	130	158	CHE Diesel					
Crane	Terex	RT230-2	Diesel	Cummins	6BT5.9	2014	130	141	CHE Diesel					
Crane	Paceco		Electric				0		CHE Electric					
Crane	Paceco		Electric				0		CHE Electric					
Crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Noell		Electric				0	1560	CHE Electric					
Electric wharf crane	Noell		Electric				0	2844	CHE Electric					
Electric wharf crane	Noell		Electric				0	3110	CHE Electric					
Electric wharf crane	Noell		Electric				0	2674	CHE Electric					
Electric wharf crane	Noell		Electric				0	2336	CHE Electric					
Electric wharf crane	Noell		Electric				0	0	CHE Electric					
Electric wharf crane	Noell		Electric				0	276	CHE Electric					
Electric wharf crane	Noell		Electric				0	1425	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	3901	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	4019	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	4064	CHE Electric					
Electric wharf crane	ZPMC	J481A	Electric				0	3776	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000148	Electric				0	4432	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000149	Electric				0	4328	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000150	Electric				0	4176	CHE Electric					
Electric wharf crane	ZPMC	ZP-10020000151	Electric				0	3996	CHE Electric					
Electric wharf crane	Mitsui/Paceco		Electric				0	3200	CHE Electric					
Electric wharf crane	Mitsui/Paceco		Electric				0	3077	CHE Electric					
Electric wharf crane	Mitsubishi	60T	Electric				0	1468	CHE Electric					
Electric wharf crane	Mitsubishi	60T	Electric				0	1709	CHE Electric					
Electric wharf crane	Mitsubishi	50T	Electric				0	1382	CHE Electric					
Electric wharf crane	Mitsubishi	50T	Electric				0	2708	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	2581	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	2652	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	2841	CHE Electric					
Electric wharf crane	Mitsui/Paceco	70T	Electric				0	1951	CHE Electric					
Electric wharf crane	Mitsubishi	60T	Electric				0	158	CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane	Paceco		Electric				0		CHE Electric					
Electric wharf crane			Electric				0	122	CHE Electric					
Electric wharf crane			Electric				0	544	CHE Electric					
Electric wharf crane			Electric				0	1208	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2736	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	4077.5	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	4275	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	3733	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	3053	CHE Electric					
Electric wharf crane	Noell		Electric				0	2103	CHE Electric					
Electric wharf crane	Noell		Electric				0	1880	CHE Electric					
Electric wharf crane	Noell		Electric				0	3855	CHE Electric					
Electric wharf crane	Noell		Electric				0	2687	CHE Electric					
Electric wharf crane	Noell		Electric				0	3418	CHE Electric					
Electric wharf crane	Noell		Electric				0	3777	CHE Electric					
Electric wharf crane	Noell		Electric				0	3811	CHE Electric					
Electric wharf crane	Noell		Electric				0	3205	CHE Electric					
Electric wharf crane	Noell		Electric				0	3722	CHE Electric					
Electric wharf crane	Noell		Electric				0	1139	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	1338.5	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2043.5	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	2229	CHE Electric					
Electric wharf crane	ZPMC		Electric				0	1892	CHE Electric					
Electric wharf crane	ZPMC	J111A00-8	Electric				0	0	CHE Electric					
Electric wharf crane	ZPMC	J111A00-9	Electric				0	0	CHE Electric					
Electric wharf crane	ZPMC	ZP-2073-10	Electric				0	0	CHE Electric					
Electric wharf crane	ZPMC	ZP-2073-11	Electric				0	0	CHE Electric					
Electric wharf crane	ZPMC	ZP-2073-12	Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	2555	CHE Electric					
Electric wharf crane			Electric				0	3487	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Electric wharf crane			Electric				0	0	CHE Electric					
Forklift	Taylor	TE800L	Diesel	Cummins		2018	330	71	CHE Diesel				6/1/2021	
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2016	164	229	CHE Diesel				6/1/2021	
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2016	164	416	CHE Diesel				6/1/2021	
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	1334	CHE Diesel				6/1/2021	
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	593	CHE Diesel				6/1/2021	
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	553	CHE Diesel				6/1/2021	
Forklift	Hyster	P360	Diesel	Cummins	QSB6.7	2018	164	324	CHE Diesel				6/1/2021	
Forklift	Kalmar	15T	Diesel	Cummins	QSB 6.7	2007	220	11	CHE Diesel		5/4/2012			11/1/2022
Forklift	Kalmar	15T	Diesel	Cummins	QSB 6.7	2007	220	102	CHE Diesel					11/1/2022
Forklift	Kalmar	15T	Diesel	Cummins	QSB 6.7	2007	220	14	CHE Diesel					11/1/2022
Forklift	Capacity	TJ7000	Diesel	Cummins	QSC8.3L	2007	230	21	CHE Diesel		1/1/2009			11/1/2022
Forklift	Capacity	TJ7000	Diesel	Cummins	QSB6.7	2008	220	47	CHE Diesel		3/1/2010			11/1/2022
Forklift	Capacity	TJ7000	Diesel	Cummins	QSB6.7	2008	220	155	CHE Diesel		3/1/2010			11/1/2022
Forklift			Diesel			2012		648	CHE Diesel					11/1/2022
Forklift			Diesel	Cummins		2015		620	CHE Diesel					11/1/2022
Forklift			Diesel	Cummins		2015		1291	CHE Diesel					11/1/2022
Forklift			Diesel	Cummins		2015		187	CHE Diesel					11/1/2022
Forklift	Hyundai		Diesel	Cummins		2017		105	CHE Diesel					11/1/2022
Forklift	Taylor		Diesel			2019		823	CHE Diesel					11/1/2022
Forklift	Taylor		Diesel			2019		770	CHE Diesel					11/1/2022
Forklift			Diesel			2020			CHE Diesel					
Forklift			Diesel			2017		14	CHE Diesel					
Forklift			Diesel			2016		619	CHE Diesel					
Forklift			Diesel			2017		603	CHE Diesel					
Forklift	Kalmar	DCE-150-6	Diesel	Cummins	QSB6.7	2008	173	3	CHE Diesel		1/21/2015		11/1/2022	
Forklift	Kalmar	DCE-150-6	Diesel	Cummins	QSB6.7	2008	173	49	CHE Diesel		1/23/2015		11/1/2022	
Forklift	Kalmar	DCE-150-6	Diesel	Cummins	QSB6.7	2008	173	69	CHE Diesel		3/12/2015		11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	551	CHE Diesel		7/17/2015		11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	604	CHE Diesel		7/21/2015		11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	371	CHE Diesel		7/23/2015		11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2011	160	206	CHE Diesel		7/24/2015		11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2013	173	725	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2013	173	569	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2013	173	722	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2013	173	168	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2013	173	487	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2013	173	602	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2013	173	0	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	653	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	750	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	850	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	624	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	784	CHE Diesel				11/1/2022	

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	870	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	858	CHE Diesel				11/1/2022	
Forklift	Taylor	TXH350L	Diesel	Cummins	QSB6.7	2014	173	845	CHE Diesel				11/1/2022	
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2017	173	192	CHE Diesel				11/1/2022	
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2017	173	282	CHE Diesel				11/1/2022	
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2021	173	94	CHE Diesel				11/1/2022	
Forklift	Taylor	XH350L	Diesel	Cummins	QSB6.7	2021	173	66	CHE Diesel				11/1/2022	
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2012	220	210	CHE Diesel		7/1/2016		11/1/2022	
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2012	220	272	CHE Diesel		7/1/2016		11/1/2022	
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2012	220	265	CHE Diesel		7/1/2016		11/1/2022	
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2012	220	174	CHE Diesel		6/27/2017		11/1/2022	
Forklift	Taylor	TX550RC	Diesel	Cummins	QSB6.7	2012	220	231	CHE Diesel		6/17/2016		11/1/2022	
Forklift	Kalmar	DCD250	Diesel	Cummins	QSB6.7	2008	260	81	CHE Diesel		2/5/2016		11/1/2022	
Forklift	Taylor	TX1700L	Diesel	Cummins	QSL-9	2013	230	239	CHE Diesel				11/1/2022	
Forklift	Taylor	TX1700L	Diesel	Cummins	QSL-9	2013	230	226	CHE Diesel				11/1/2022	
Forklift	Taylor	TX1700L	Diesel	Cummins	QSL-9	2013	230	234	CHE Diesel				11/1/2022	
Forklift	Kalmar	DCD370-12	Diesel	Volvo	TAD1170VE	2014	319	58	CHE Diesel				11/1/2022	
Forklift	Kalmar	DCD370-12	Diesel	Cummins	QSM11	2004	330	11	CHE Diesel				11/1/2022	
Forklift	Kalmar	DCF500-12	Diesel	Cummins	QSM11	2008	350	324	CHE Diesel		4/8/2016		11/1/2022	
Forklift	Kalmar	DCF500-12	Diesel	Volvo	TAD1360VE	2013	348	257	CHE Diesel				11/1/2022	
Forklift	Taylor	X1000RC	Diesel	Volvo	TAD1371VE	2014	388	146	CHE Diesel				11/1/2022	
Forklift	Taylor	X1000RC	Diesel	Volvo	TAD1371VE	2014	388	125	CHE Diesel				11/1/2022	
Forklift	Kalmar	DCE90-6L	Diesel	Perkins	S6S	2004	114	81	CHE Diesel		7/31/2014		11/1/2022	
Forklift	Hyster	H50FT	Diesel	YANMAR	3.3L	2014	165	230	CHE Diesel					
Forklift	Taylor	TX360L	Diesel	Cummins	5.9	2007	137	81	CHE Diesel		5/13/2013			
Forklift	Taylor	TX360L	Diesel	Cummins	5.9	2007	137	105	CHE Diesel		3/12/2014			
Forklift	Yale	GDP360EBECCV1	Diesel			2009		245	CHE Diesel		8/13/2013			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2004	190	1050	CHE Diesel		1/15/2014			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2004	152	875	CHE Diesel		8/18/2014			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2005	152	1827	CHE Diesel		2/21/2013			
Forklift	Taylor	TH350L	Diesel	Cummins	5.9	2005	152	1202	CHE Diesel		8/14/2014			
Forklift	Hoist	P36	Diesel	Hyster	P360	2007	160	12	CHE Diesel		1/1/2012			10/1/2022
Forklift	Kone	SMV16-600B	Diesel	Kone	SMV 16-1600B	2011	248	67	CHE Diesel					10/1/2022
Forklift	Kone	SMV16-600B	Diesel	Kone	SMV 16-1600B	2011	248	142	CHE Diesel					10/1/2022
Forklift	Hyster	H250HD2	Diesel	Hyster	H250HD2	2015		70	CHE Diesel					10/1/2022
Forklift	Hyster	H250HD2	Diesel	Hyster	H250HD2	2015		54	CHE Diesel					10/1/2022
Forklift	Taylor	TX360L	Diesel	Cummins	QSB 6.7	2012	173	1745	CHE Diesel					
Forklift	Fantuzzi	FDC180/1600	Diesel	Caterpillar	Tier 4i C4.4	2014	174	772	CHE Diesel					
Forklift	Fantuzzi	FDC180/1600	Diesel	Caterpillar	Tier 4i C4.4	2014	174	2501	CHE Diesel					
Forklift	Taylor	TX360L	Diesel	Cummins	QSB 6.7	2015	173	532	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	261	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	231	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	96	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	124	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	261	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	310	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	277	CHE Diesel					
Forklift	Clark	C50sD	Diesel	Deutz	TD 3.6 L4	2015	56	291	CHE Diesel					
Forklift	Caterpillar	DP150	Diesel	Deutz	TCD2012L042V	2010	131	0	CHE Diesel					
Forklift	Hyster	H300XL	Diesel	Perkins		1993	175	0	CHE Diesel		4/5/2011			
Forklift	Linde	H35D	Diesel	Volkswagon	BAEU	2007	59	599	CHE Diesel					
Forklift	Hyster	H300HD	Diesel	Cummins	QSB6.7	2013	129	515	CHE Diesel					
Forklift	Taylor	XH-350L	Diesel	Cummins	QSB 6.7-C173 Tie	2021	173	234	CHE Diesel					
Forklift	Kalmar	DCE160-12	Electric					0	CHE Electric					
Forklift	Kalmar	DCE160-12	Electric					0	CHE Electric					
Forklift	Kalmar	DCE160-12	Electric					0	CHE Electric					
Forklift	Nissan	CSP01L15S	Electric				0	0	CHE Electric					
Forklift	Hyster	N40XMR2	Electric				0	0	CHE Electric					
Forklift	Nissan	CK1B1L15S	Electric				0	0	CHE Electric					
Forklift	Nissan	MCJ1B1L15S	Electric				0	432	CHE Electric					
Forklift	Raymond Pacer	R30-C30TT	Electric				0	0	CHE Electric					
Forklift	Wiggins	W450YE	Electric			2022	0	276	CHE Electric					
Forklift	Caterpillar	2EP11000	Electric			2022	0	173	CHE Electric					
Forklift	Caterpillar	2EP11000	Electric			2022	0	141	CHE Electric					
Forklift	Caterpillar	2EP11000	Electric			2022	0	90	CHE Electric					
Forklift	Caterpillar	2EP11000	Electric			2022	0	101	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16NT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	EP16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	EP16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	EP16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16NT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16KT	Electric					250	CHE Electric					
Forklift	Mitsubishi	FB16NT	Electric					250	CHE Electric					
Forklift	Toyota		Gasoline			2010		592	CHE Gasoline					
Forklift	Toyota		Gasoline			2011		103	CHE Gasoline					
Forklift	Toyota		Gasoline			2011		1663	CHE Gasoline					
Forklift	Mitsubishi		Gasoline	Nissan		2012		576	CHE Gasoline					
Forklift	Nissan	CF01A15V	Gasoline				45	396	CHE Gasoline					
Forklift	Nissan	CPH01A15V	Gasoline				45	55	CHE Gasoline					
Forklift	Toyta		LPG					122	CHE Propane					
Forklift	Toyta		LPG					439	CHE Propane					
Forklift	Clark	GCS20MB	LPG	Mitsubishi	4G52	1988	49	52	CHE Propane					
Forklift	Clark	GCS 20	LPG	Mitsubishi	4G52	1988	49	72	CHE Propane					
Forklift	Komatsu	FG40ZT-8	LPG	Nissan	TB45L	2007	86	226	CHE Propane					
Forklift	Komatsu	FG40ZT-8	LPG	Nissan	TB45L	2007	86	229	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	416	CHE Propane					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	677	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	513	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	284	CHE Propane					
Forklift	Nissan	PF80YLP	LPG	Nissan	TB45	2010	95	292	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	170	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	288	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	1072	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	706	CHE Propane					
Forklift	Clark	C40L	LPG	GM	4.3L	2012	120	827	CHE Propane					
Forklift	Toyota	8FGUS25-147V	LPG	Toyota	:2403050	2012	51	10	CHE Propane					
Forklift	Toyota	8FGUS25-147V	LPG	Toyota	:2403050	2012	51	46	CHE Propane					
Forklift	Mitsubishi	FG45N-LE	LPG	Nissan	TB45	2013	95	206	CHE Propane					
Forklift	Mitsubishi	FG45N-LE	LPG	Nissan	TB45	2013	95	221	CHE Propane					
Forklift	Mitsubishi	FG45N-LE	LPG	Nissan	TB45	2013	95	446	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	206	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	321	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	89	CHE Propane					
Forklift	Hyster	H90FT	LPG	GM	4.3L	2014	100	454	CHE Propane					
Forklift	Toyota	8FGU25	LPG	Toyota	204Y	2014	51	257	CHE Propane					
Forklift	Toyota	8FGU25	LPG	Toyota	204Y	2014	51	266	CHE Propane					
Forklift	Nissan	60	LPG	Nissan	K25L	2007		137	CHE Propane					
Forklift	Nissan	60	LPG	Nissan	K25L	2007		87	CHE Propane					
Forklift	Nissan		LPG	Nissan		2007		436	CHE Propane					
Forklift	CAT		LPG	Nissan	K25L	2008		4547	CHE Propane					
Forklift	CAT		LPG	Nissan	K25L	2008		326	CHE Propane					
Forklift	CAT		LPG	Nissan	K25L	2008		353	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	355	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	296	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	373	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	500	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	115	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	347	CHE Propane					
Forklift	Toyota	8FGU32	LPG	Toyota	4Y	2017	42	487	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	46	242	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	46	133	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	46	110	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	484	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	582	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	150	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	734	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	476	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	350	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	219	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	429	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	569	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	323	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	271	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	534	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	375	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	332	CHE Propane					
Forklift	Clark	C55S	LPG	GM	V6 4.3	2013	93	95	CHE Propane					
Forklift	Clark	C75L	LPG	GM	V6 4.3	2013	93	261	CHE Propane					
Forklift	Clark	C75L	LPG	GM	V6 4.3	2013	93	252	CHE Propane					
Forklift	Hyster	H80XL	LPG	GMC	3.6	1995	165	39	CHE Propane					
Forklift	Hyster	H50FT	LPG	PSI	2.2	2014	59	274	CHE Propane					
Forklift	Hyster	H50FT	LPG	PSI	2.2	2015	59	181	CHE Propane					
Forklift	Yale	GLP100MJNB	LPG	GMC	3.6	2005	160	112	CHE Propane					
Forklift	Yale	GLP100MJNB	LPG	GMC	3.6	2005	160	133	CHE Propane					
Forklift	Yale	GLP100	LPG			2008	160	551	CHE Propane					
Forklift	Yale	GLP100	LPG			2008	160	35	CHE Propane					
Forklift	Hyster	H100FT	LPG			2011		490	CHE Propane					
Forklift	Nissan	PL50LP	LPG			2007	122	10	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	6	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	25	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	28	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	27	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	18	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	22	CHE Propane					
Forklift	Nissan	JP80BYLP	LPG			2007	122	37	CHE Propane					
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		255	CHE Propane					
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		0	CHE Propane					
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		319	CHE Propane					
Forklift	Clark	C40L	LPG	PSI	PSI-4.3	2020		25	CHE Propane					
Forklift	Yale	GC040LX2	LPG	PSI	PSI 2.4L	2020	164	547	CHE Propane					
Forklift	Yale	GC040LX2	LPG	PSI	PSI 2.4L	2020	164	505	CHE Propane					
Forklift	Yale	GDP360EF	LPG	PSI	2.4L	2019	62	177	CHE Propane					
Forklift	Hyster	GLP050MXNEAE0	LPG	PSI	2.4L	2019	62	180	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	51	376	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	51	232	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2010	51	204	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	282	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	190	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	259	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	197	CHE Propane					
Forklift	Hyster	H50FT	LPG	GM	Vortex 4.3L	2011		315	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	148	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	159	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	199	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	182	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2012	51	194	CHE Propane					
Forklift	Yale	GLP-100	LPG	GM	VORTEX 4.3L	2007		107	CHE Propane					
Forklift	Hyster	H50FT	LPG	Mazda	2.2L	2011	51	23	CHE Propane					
Forklift	Caterpillar	GP35N5	LPG	Caterpillar	GK25	2021	28	177	CHE Propane					
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O	1994	46	250	CHE Propane			7/4/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	K21L	2008	48	250	CHE Propane					
Forklift	Komatsu	FG15HT-15	LPG	Nissan	K21L	2008	48	250	CHE Propane					
Forklift	Komatsu	FG15HT-15	LPG	Nissan	K21L	2008	48	250	CHE Propane					
Forklift	Komatsu	FG15HT-15	LPG	Nissan	K21L	2008	48	250	CHE Propane					
Forklift	Komatsu	FG40ZT-5	LPG	Nissan		1991		250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1991	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB42	1994	85	250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45K1	LPG	Nissan	TB45L	2006	117	250	CHE Propane					
Forklift	Komatsu	FG45K1	LPG	Nissan	TB45L	2006	117	250	CHE Propane					
Forklift	Komatsu	FG45T-8	LPG	Nissan	TB45L	2008	84	250	CHE Propane					
Forklift	Komatsu	FG45K1	LPG	Nissan	TB45L	2007	84	250	CHE Propane					
Forklift	Komatsu	FG45T-8	LPG	Nissan	TB45L	2006	117	250	CHE Propane					
Forklift	Komatsu	FG15HT-17	LPG	Nissan	K21L	2006	50	250	CHE Propane					
Forklift	Komatsu	FG15HT-17	LPG	Nissan	K21L	2006	50	250	CHE Propane					
Forklift	Komatsu	FG15HT-17	LPG	Nissan	K21L	2006	50	250	CHE Propane					
Forklift	Komatsu	FG15HT-17	LPG	Nissan	K21L	2006	50	250	CHE Propane					
Forklift	Komatsu	FG30G-11	LPG	Nissan		1991		250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG30G-11	LPG	Nissan		1991		250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG30G-11	LPG	Nissan		1994		250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG45T-6	LPG	Nissan	TB45L	2005	96	250	CHE Propane					
Forklift	Clark	CT-50	LPG	Ford				250	CHE Propane			7/5/1905		
Forklift	Komatsu	FG15HT-15	LPG	Nissan	H2O			250	CHE Propane			7/5/1905		
Forklift	Komatsu	5000 lb	LPG			2002	58	1000	CHE Propane					
Forklift	Komatsu	5000 lb	LPG			2002	58	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2002	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	1000	CHE Propane					
Forklift	Komatsu	6000 lb	LPG			2008	60	1000	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	YALE		LPG					500	CHE Propane					
Forklift	HYSTER		LPG					500	CHE Propane					
Forklift	HYSTER		LPG					500	CHE Propane					
Forklift	HYSTER		LPG					500	CHE Propane					
Forklift	HYSTER		LPG					500	CHE Propane					
Forklift	HYSTER		LPG					500	CHE Propane					
Forklift	HYSTER		LPG					500	CHE Propane					
Forklift	HYSTER		LPG					500	CHE Propane					
Forklift			LPG			2015	125	2179	CHE Propane					
Forklift	Mitsubishi	FG40N	LPG	Nissan	TB45L	2011	76	143	CHE Propane					
Forklift	Toyota	7FU45	LPG	GM	4.3 Vortec	2008	200	1200	CHE Propane					
Forklift	Yale	GLP050VXESV	LPG	Mazda	F2-Z25D	2006	51	585	CHE Propane					
Forklift	Yale	GLP050VXESV	LPG	Mazda	F2-Z25D	2006	51	491	CHE Propane					
Forklift	Heyster	H50FT	LPG	IMPCO		2010	46	502	CHE Propane					
Forklift	Clark	S25L	LPG	Ford	2.5L	2021		72	CHE Propane					
Forklift	Clark	S25L	LPG	Ford	2.5L	2021		92	CHE Propane					
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	4836	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	5406	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	5748	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	6338	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	5906	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	6106	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	6325	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	5957	CHE Diesel				6/1/2021	
Hybrid RTG	Paceco-Mitsui		Diesel	Caterpillar	C7	2018	249	6301	CHE Diesel				6/1/2021	
Hybrid RTG	ZPMC	RTG	Diesel			2011	197	2165	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	4755	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	4537	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	4231	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	4192	CHE Diesel					
Hybrid RTG	Paceco	RTG	Diesel	Caterpillar	C7.1 ACERT	2015	302	3411	CHE Diesel					
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3429	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3178	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	2912	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3036	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3181	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102		CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3423	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3592	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3009	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3375	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	3283	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	HSC350A	Diesel	AGCO	44AWF	2016	102	507	CHE Diesel					4/1/2021
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1969	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1867	CHE Diesel					10/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2005	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1798	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2008	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2102	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2248	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2214	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2302	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	1973	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2244	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2298	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2345	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2369	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2704	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2489	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2237	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2397	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2703	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2371	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2791	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2606	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2186	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2096	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2458	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	3162	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2018	103	2618	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2319	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	1086	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3122	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3076	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3075	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3307	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3244	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2858	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3376	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3370	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3356	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2696	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3522	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	1901	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2086	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3846	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3701	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3352	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3257	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3614	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3803	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3077	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2781	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2899	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2942	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	1951	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3113	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3174	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2901	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3558	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3536	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3114	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3710	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2459	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2703	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3515	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2519	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2943	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3517	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	1641	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	3161	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	2352	CHE Diesel					10/1/2022
Hybrid Straddle Carrier	Kalmar	44AWF.1184	Diesel	Agco Sisu	D49FSR	2019	103	1953	CHE Diesel					10/1/2022
Loader	Mijack	M115	Diesel	Cummins	QSX11.9	2010	460	84	CHE Diesel				11/1/2022	
Loader	Mijack	MJ150	Diesel	Cummins	QSB 6.7	2015	260	262	CHE Diesel				11/1/2022	
Loader	Caterpillar	988K	Diesel	Caterpillar	C3.8B	2020	74	1214	CHE Diesel					
Loader	Caterpillar	950M	Diesel	Caterpillar	C7.1	2016	174	1155	CHE Diesel					
Loader	Caterpillar	966-D	Diesel	Caterpillar	C-7	2010	300	403	CHE Diesel					
Loader	Caterpillar	966-D	Diesel	Caterpillar	C-7	2010	232	827	CHE Diesel		7/22/2010			
Loader	Caterpillar	966M	Diesel	Caterpillar	C9.3	2020	174	3068	CHE Diesel					
Loader	Caterpillar	980H	Diesel	Caterpillar	C15	2007	318	225	CHE Diesel		5/8/2015			
Loader	Caterpillar	988H	Diesel	Caterpillar	C18	2011	527	1686	CHE Diesel		2/27/2015			
Loader	Caterpillar	988K	Diesel	Caterpillar	C18	2013	527	1579	CHE Diesel					
Loader	Caterpillar	988K	Diesel	Caterpillar	C18	2013	527	3628	CHE Diesel					
Loader	Caterpillar	988K	Diesel	Caterpillar	C18	2018	527	4380	CHE Diesel					
Loader	Caterpillar	450	Diesel	Caterpillar	C7.1	2022	100	46	CHE Diesel					
Loader	Case	480	Diesel			2009	110	964	CHE Diesel					
Man Lift	Genie	S-125	Diesel			2003	75	40	CHE Diesel		1/1/2014		6/1/2021	
Man Lift	Genie	S-65	Diesel			2007	75	101	CHE Diesel		1/1/2014		6/1/2021	
Man Lift	JLG		Diesel	Deutz	BF4M2011	2004	87	58	CHE Diesel		9/1/2010			11/1/2022
Man Lift	JLG	G6-42A	Diesel	Cummins	QSF3.8	2015	110	0	CHE Diesel					11/1/2022
Man Lift	JLG		Diesel	Deutz	BF4M2011	2006	87	194	CHE Diesel		9/1/2010			11/1/2022
Man Lift	Skyjack		Diesel			2018	107		CHE Diesel					4/1/2021
Man Lift	Skyjack		Diesel			2018	107		CHE Diesel					4/1/2021
Man Lift	Skyjack	SJ1256	Diesel	Deutz AG	TCD 3.6 l4	2017	107		CHE Diesel					4/1/2021
Man Lift	Terex	TB60	Diesel	Cummins	B3.9-C	2002	73	85	CHE Diesel		8/20/2014		11/1/2022	
Man Lift	JLG	1350SJP	Diesel	Deutz	TD2011L04	2012	73	84	CHE Diesel				11/1/2022	
Man Lift	JLG	86055	Diesel	Deutz	FRM2011	2002	87	223	CHE Diesel		1/1/2012			10/1/2022
Man Lift	Terex	TB60	Diesel	Cummins	B3.9	2000	80	374	CHE Diesel		1/1/2012			10/1/2022
Man Lift	JLG	86JS	Diesel	Deutz		2007	87	386	CHE Diesel		1/1/2012			10/1/2022
Man Lift	Motrec	RR662	Diesel			2008	87		CHE Diesel		1/1/2012			10/1/2022
Man Lift			Diesel				87		CHE Diesel		1/1/2012			10/1/2022
Man Lift	JLG Lift	800 AJ	Diesel	Perkins	GP65-4N	2009	65	109	CHE Diesel					
Man Lift	JLG Lift	800 AJ	Diesel	Deutz	TD2011L04	2008	75	883	CHE Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Man Lift	Genie lift	S60	Diesel	Deutz	D2011L031	2007	49	219	CHE Diesel					
Man Lift	Skyjack	SJIH 4740	Electric				0	0	CHE Electric					
Man Lift	Skyjack		Electric				0	0	CHE Electric					
Man Lift	Skyjack	3291	Electric				0	0	CHE Electric					
Man Lift	Skyjack	3226	Electric				0	0	CHE Electric					
Man Lift	JLG	660SJ	Gasoline			2007	60	96	CHE Gasoline					
Material Handler	Caterpillar	330DL	Diesel	Caterpillar	C9	2007	268	774	CHE Diesel		4/1/2011			
Material Handler	Caterpillar	345C MH	Diesel	Caterpillar	C13	2008	371	2350	CHE Diesel		2/27/2015			
Material Handler	Caterpillar	345C MH	Diesel	Caterpillar	C13	2007	371		CHE Diesel		3/24/2015			
Material Handler	Caterpillar	345C MH	Diesel	Caterpillar	C13	2007	371	1232	CHE Diesel		9/23/2013			
Material Handler	Caterpillar	345C MH	Diesel	Caterpillar	C13	2008	371	573	CHE Diesel		2/27/2015			
Material Handler	Caterpillar	345	Diesel	Caterpillar	C13	2005	371		CHE Diesel		5/9/2016			
Material Handler	Caterpillar	375-L	Diesel	Caterpillar	C15	2009	475	467	CHE Diesel		6/1/2012			
Material Handler	Caterpillar	375-L	Diesel	Caterpillar	C15	2009	450	158	CHE Diesel		8/1/2011			
Material Handler	Caterpillar	385C	Diesel	Caterpillar	C18	2008	390	1581	CHE Diesel		3/23/2015			
Material Handler	Caterpillar	385C	Diesel	Caterpillar	C18	2011	390	1383	CHE Diesel		3/20/2015			
Material Handler	Caterpillar	349FL	Diesel	Caterpillar	C13	2018	425	1037	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2020	425	3712	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2020	425	3903	CHE Diesel					
Material Handler	Caterpillar	3260	Diesel	Caterpillar	C13	2020	425	1888	CHE Diesel					
Rail Pusher	Rail King	RK320	Diesel	Cummins	QSB6.7	2012	194	1195	CHE Diesel					
Rail Pusher	Zephir		Electric			2021		453	CHE Electric					
Reach Stacker	Kalmar	TD100G	Diesel	Cummins	QSL9 250	2013	250		CHE Diesel					4/1/2021
Reach Stacker	Taylor	TS9972	Diesel	Volvo	TAD136OVE	2012	343	62	CHE Diesel		7/11/2014		11/1/2022	
Reach Stacker	SANY	SRSC4535C2	Diesel	Cummins	QSL9 333	2014	333	656	CHE Diesel					
Reach Stacker	CVS FERRARI	F581W	Diesel	Cummins	X12	2021	449	192	CHE Diesel					
Rub-trd Gantry Crane	Sumitomo	RTG62 / 22.555 / 4	Diesel	Cummins	QSX15G	2014	750	3022	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Sumitomo	RTG62 / 22.555 / 4	Diesel	Cummins	QSX15G	2014	750	3576	CHE Diesel		1/1/2016		6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	4138	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	6007	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	4665	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	5067	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	5542	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	5007	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	5244	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell	RTG62 / 22.555 / 4	Diesel	Cummins	KTA 19-G2	2013	600	4488	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	QSX15G	2014	750	4182	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell		Diesel	Caterpillar	C15	2015	624	836	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell		Diesel	Caterpillar	C15	2015	624	464	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell		Diesel	Caterpillar	C15	2015	624	368	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Noell		Diesel	Caterpillar	C15	2015	624	559	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	C15X	2020	750	5361	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	C15X	2020	750	5471	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Paceco-Mitsui		Diesel	Cummins	C15X	2020	750	5816	CHE Diesel				6/1/2021	
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2047	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2013	627	2032	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2013	627	2077	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2011	410	2420	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2194	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2011	410	2183	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2258	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2104	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2759	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2390	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4F	2020	410	2636	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2857	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2368	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	Mitsui/Paceco	RT-4020-8-I-5	Diesel	Cummins	QSX15 Tier 4i	2012	550	2888	CHE Diesel					11/1/2022
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	2418	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	3542	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	2788	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	3587	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	2937	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	3638	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	2385	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Caterpillar	3456	2003	612	2336	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	Paceco	RTG	Diesel	Deutz	8M1015C	2004	454	3092	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	Paceco	RTG	Diesel	Deutz	8M1015C	2004	454	2435	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Cummins	QSX15-G7	2005	685	3306	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Cummins	QSX15-G7	2005	685	3009	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Cummins	QSX15-G7	2005	685	3355	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	ZPMC	RTG	Diesel	Cummins	QSX15-G7	2005	685	3519	CHE Diesel	12/1/2012				
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2002	680	32	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2772	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2875	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	3130	CHE Diesel		1/23/2013			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2005	680	2220	CHE Diesel		1/31/2013			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	3157	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2695	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2005	680	2373	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2670	CHE Diesel		10/1/2014			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2935	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2596	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	1119	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2293	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2006	680	2838	CHE Diesel		2/26/2013			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2005	680	2753	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2498.5	CHE Diesel		2/13/2013			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX X 15 T4f	2019	680	1219.5	CHE Diesel		10/1/2014			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2398	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2673	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2896	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2606	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Kone	D1703	Diesel	Cummins	QSX 15-G7	2004	680	2372.5	CHE Diesel		1/1/2020			10/1/2022
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2673.44	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2276	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2044	CHE Diesel					
Rub-trd Gantry Crane	ZMPC	RC40.6/56	Diesel	Caterpillar	3456ATAAC	2005	612	0	CHE Diesel		1/1/2015			
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2492	CHE Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2362	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2153	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2585	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2034	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2438	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2613	CHE Diesel					
Rub-trd Gantry Crane	Mitsui-Paceco	RT4023-8-1	Diesel	Caterpillar	C-15	2013	779	2675	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9	2011	320	2679	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Detroit	DDEC	2011	320	3002	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9	2011	320	2725	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9	2011	320	2479	CHE Diesel					
Rub-trd Gantry Crane	Mi Jack	1200R	Diesel	Cummins	QSL9 333	2015	320	3304	CHE Diesel					
Rub-trd Gantry Crane	MI-JACK	1200R	Diesel	Cummins	QSL9	2021	332	0	CHE Diesel					
Side pick	Kalmar		Diesel	Cummins	QSL9 275	2017	275		CHE Diesel					4/1/2021
Side pick	Fantuzzi	FDC25K7	Diesel	Cummins	QSL9 275	2017	275		CHE Diesel					4/1/2021
Side pick	Fantuzzi	FDC25K7	Diesel	Cummins	QSL	2016	275	0	CHE Diesel					4/1/2021
Side pick	Terex	FDC25K7	Diesel	Cummins	QSL	2016	275		CHE Diesel					4/1/2021
Side pick	Terex	FDC25K7	Diesel	Cummins	QSL	2016	275		CHE Diesel					4/1/2021
Side pick	Terex	FDC25K7	Diesel	Cummins	QSL	2016	275		CHE Diesel					4/1/2021
Side pick	Taylor	TEC 155H	Diesel	Cummins	5.9L B series	2000	152	0	CHE Diesel		7/11/2014		11/1/2022	
Side pick	Taylor	TEC 155H	Diesel	Cummins	5.9L B series	2000	152	0	CHE Diesel		7/11/2014		11/1/2022	
Side pick	Taylor	XEC155/6	Diesel	Cummins	QSB6.7	2020	173	208	CHE Diesel				11/1/2022	
Side pick	Taylor	XEC155/6	Diesel	Cummins	QSB6.7	2020	173	202	CHE Diesel				11/1/2022	
Side pick	Fantuzzi	FDC25K5	Diesel	Cummins	C 7.1 Tier 4F	2014	240	4718	CHE Diesel					
Side pick	Fantuzzi	FDC25K5	Diesel	Caterpillar	C 7.1 Tier 4F	2014	250	3739	CHE Diesel					
Side pick			Diesel			2020	250	2302	CHE Diesel					
Side pick			Diesel			2020	250	1891	CHE Diesel					
Skid Steer Loader	Caterpillar	252B	Diesel	Mitsubishi	3044C	2007	70	454	CHE Diesel					
Skid Steer Loader	Caterpillar	252B	Diesel	Mitsubishi	3044C	2007	70	252	CHE Diesel					
Skid Steer Loader	Caterpillar	252B	Diesel	Caterpillar	S4S-DTDPB	2012	56	455	CHE Diesel					
Skid Steer Loader	Caterpillar	262DL	Diesel	Caterpillar	C3.8B	2018	73	951	CHE Diesel					
Skid Steer Loader	Bobcat	853	Diesel	bobcat	KUBTA	1994	75	28	CHE Diesel					
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5833	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4549	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4464	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5469	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	3811	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4879	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4916	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4790	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5533	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	2657	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5102	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5165	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	4355	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5152	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5477	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5703	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5020	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5340	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5290	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	5729	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	Volvo	TAD1172VE	2015	425	0	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	3967	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	1974	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5760	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	3574	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	4664	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5304	CHE Diesel					4/1/2021
Straddle Carriers	Kalmar	ESC350WA	Diesel	AGCO	SISU POWER 98/	2013	425	5037	CHE Diesel					4/1/2021
Sweeper	Schwarze		Diesel	John Deere		2019	200	964	CHE Diesel					11/1/2022
Sweeper	Elgin	Crosswind	Diesel		ISB 6.7	2013	200	282	CHE Diesel					4/1/2021
Sweeper	Caterpillar	IT14G	Diesel	Caterpillar	3054 DIT	2000	96	109	CHE Diesel		9/19/2013		11/1/2022	
Sweeper	Caterpillar	DL200TC-5	Diesel	Doosan	1204F-E44TAN	2016	173	249	CHE Diesel				11/1/2022	
Sweeper	Caterpillar	DL200TC-5	Diesel	Doosan	1204F-E44TAN	2016	173	371	CHE Diesel				11/1/2022	
Sweeper	Tymco	500X	Diesel	Isuzu	44K1TC	2018	210	292	CHE Diesel					
Sweeper	Elgin	Crosswind	Gasoline			2005	205		CHE Gasoline					
Sweeper	Elgin	Crosswind	Gasoline			2015	205		CHE Gasoline					
Sweeper	Tymco	DST-6	Gasoline			2018			CHE Gasoline					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2013	74	124	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2014	74	141	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2014	74	51	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2018	74	317	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2019	74	172	CHE Diesel					
Telehandler	JCB	509-42 F	Diesel	JCB	444TA4I8IL1	2019	74	274	CHE Diesel					
Telehandler	JLG	1055	Diesel	Cummins	QSF3.B	2021	130	831	CHE Diesel					
Top handler	Taylor	TXC-976	Diesel			2015	330	1294	CHE Diesel				6/1/2021	
Top handler	Taylor	TXC-976	Diesel			2015	330	2104	CHE Diesel				6/1/2021	
Top handler	Taylor	TXC-976	Diesel	Volvo	TAD1360VE	2012	335	819	CHE Diesel				6/1/2021	
Top handler	Taylor	TXC-976	Diesel	Volvo	TAD1360VE	2012	335	2374	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	23	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	2593	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	2893	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	2092	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2012	335	2390	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	393	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	2209	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	2672	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	168	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	L-TAD1360VE	2014	350	2040	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	2059	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1988	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	1273	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2014	350	2060	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2015	350	2110	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2015	350	1903	CHE Diesel				6/1/2021	
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2015	350	2481	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2015	335	1935	CHE Diesel				6/1/2021	
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2015	335	2261	CHE Diesel				6/1/2021	

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Top handler	Taylor	TXLC-976	Diesel	Volvo	TAD1360VE	2015	335	3151	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3029	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3616	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2961	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3586	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3551	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3445	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3428	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3613	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3560	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2734	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2285	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3674	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3516	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3677	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3342	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3278	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3129	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3210	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2070	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2290	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3548	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3272	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	3108	CHE Diesel				6/1/2021	
Top handler	Taylor	XLC-976	Diesel	Volvo	TAD1371VE	2018	389	2453	CHE Diesel				6/1/2021	
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	16	CHE Diesel		1/1/2012			11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	25	CHE Diesel		1/1/2012			11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	22	CHE Diesel		1/1/2012			11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	50	CHE Diesel		1/1/2012			11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	43	CHE Diesel		1/1/2012			11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	34	CHE Diesel		1/1/2012			11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	53	CHE Diesel		1/1/2012			11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	37	CHE Diesel					11/1/2022
Top handler	Fantuzzi	FDS500	Diesel	Cummins	QSM11	2005	330	34	CHE Diesel					11/1/2022
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	229	CHE Diesel		1/1/2010			11/1/2022
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	2030	CHE Diesel		2/1/2010			11/1/2022
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	1560	CHE Diesel		1/1/2010			11/1/2022
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	1743	CHE Diesel		3/1/2010			11/1/2022
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	2499	CHE Diesel		1/1/2012			11/1/2022
Top handler	Taylor	TH976	Diesel	Cummins	QSM11	2008	335	1864	CHE Diesel		3/1/2010			11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360V	2011	348	1612	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360V	2011	348	2780	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2012	343	3150	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2012	343	3354	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3346	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3510	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	1701	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3160	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	2526	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	2910	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3400	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2013	343	3568	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3261	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3351	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3265	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3620	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3789	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3366	CHE Diesel					11/1/2022
Top handler	Taylor	TXCL976	Diesel	Volvo	TAD1360VE	2015	343	3946	CHE Diesel					11/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins	QSL	2016	350		CHE Diesel					4/1/2021
Top handler	Taylor	FDC550G5	Diesel	Cummins	QSG12	2016	400		CHE Diesel					4/1/2021
Top handler			Diesel			2017	350		CHE Diesel					4/1/2021
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins		2016	350		CHE Diesel					4/1/2021
Top handler			Diesel			2019	350	1809	CHE Diesel					4/1/2021
Top handler			Diesel			2019	350	1553	CHE Diesel					4/1/2021
Top handler			Diesel			2017	350	2257	CHE Diesel					4/1/2021
Top handler			Diesel			2021	350	2279	CHE Diesel					4/1/2021
Top handler			Diesel			2015	350	1902	CHE Diesel					4/1/2021
Top handler			Diesel			2021	350	2450	CHE Diesel					4/1/2021
Top handler	Taylor	XLC975	Diesel	Cummins	TAD137IVE	2021	388	502	CHE Diesel				11/1/2022	
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2002	250	2025	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	260	2485	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	260	2432	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	260	1170	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2006	260	2450	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2006	260	3037	CHE Diesel		12/1/2012			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	2119	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	2967	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	2817	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	2364	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	1407	CHE Diesel		1/1/2009			
Top handler	Taylor	THDC-975	Diesel	Cummins	QSM11	2007	260	1551	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3877	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2971	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3199	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2248	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3134	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2405	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3698	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2474	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2575	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	2525	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	823	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3742	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3253	CHE Diesel		1/1/2009			
Top handler	Taylor	TXC-976	Diesel	Cummins	QSM11	2008	260	3464	CHE Diesel		1/1/2009			
Top handler	Taylor	TXLC976	Diesel	Cummins	QSM11	2011	335	2964	CHE Diesel					
Top handler	Taylor	TXLC976	Diesel	Cummins	QSM11	2011	335	3468	CHE Diesel					
Top handler	Taylor	TXLC976	Diesel	Cummins	QSM11	2011	335	2811	CHE Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Top handler	Hyster	H-1150-HDCH	Diesel	Cummins	QSL 9L	2014	370	1939	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1848	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1583	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	2525	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	2604	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1697	CHE Diesel					
Top handler	Hyster	H1150HD-CH	Diesel	Cummins	QSL 9L	2017	363	1413	CHE Diesel					
Top handler	Taylor	XLC 976E	Diesel	Volvo	12.8 L	2017	388	2492	CHE Diesel					
Top handler	Taylor	XLC 976E	Diesel	Volvo	12.8 L	2017	388	2720	CHE Diesel					
Top handler	Taylor	XLC 976E	Diesel	Volvo	12.8 L	2021	388	3545	CHE Diesel					
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2005	330	431	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2005	330	614	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2005	330	782	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	335	883	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	335	603	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	335	831	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	335	1098	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins		2012	348	2210	CHE Diesel					10/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins		2012	348	1402	CHE Diesel					10/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins		2012	348	2064	CHE Diesel					10/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins		2012	348	2435	CHE Diesel					10/1/2022
Top handler	Taylor	THDC-975	Diesel	Cummins		2012	348	2642	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2012	335	3045	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2012	335	2857	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2013	335	2336	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2013	335	3134	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2013	335	3004	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2013	335	2762	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2013	335	3669	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2014	335	2794	CHE Diesel					10/1/2022
Top handler	Taylor		Diesel	Volvo		2014	335	2649	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2015	350	2004	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	1478	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	1977	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2666	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	2463	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	3091	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	3081	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	3308	CHE Diesel					10/1/2022
Top handler	Hyster		Diesel	Cummins	QSL9	2014	350	3050	CHE Diesel					10/1/2022
Top handler	Hyster	H1150HD	Diesel	Cummins	QSL9	2014	350	3202	CHE Diesel					10/1/2022
Top handler	Hyster	H1150HD	Diesel	Cummins	QSL9	2014	350	2776	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1435	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1259	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1591	CHE Diesel					10/1/2022
Top handler			Diesel			2015	325	1878	CHE Diesel					10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	335	859	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	THDC-955	Diesel	Cummins	QSM11	2006	335	805	CHE Diesel		1/1/2012			10/1/2022
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD13	2015	325	3191	CHE Diesel					10/1/2022
Top handler	Taylor	TXLC976	Diesel	Volvo	TAD13	2015	325	3811	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	54	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	112	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	10	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	9	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	10	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Hyster	1150-CH	Diesel	Cummins	X12	2022	355	0	CHE Diesel					10/1/2022
Top handler	Taylor	TEC-950L	Diesel	Cummins	QSM-11	2011	330	733	CHE Diesel		1/1/2012			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2003	330	533	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	0	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	1954	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2003	330	1958	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	1843	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	89	CHE Diesel		1/1/2013			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	2071	CHE Diesel		1/1/2011			
Top handler	Fantuzzi	FDC500G5	Diesel	Cummins	QSM11	2004	330	1	CHE Diesel		1/1/2011			
Top handler	Taylor	TXLC976	Diesel	Volvo T4i	TAD1360WE	2012	256	1429	CHE Diesel					
Top handler	Taylor	TXLC976	Diesel	Volvo T4i	TAD1360WE	2012	256	1444	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3897	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3924	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3779	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3507	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2896	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3491	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3340	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3069	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	3169	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2312	CHE Diesel					
Top handler	Taylor	XLC976	Diesel	Volvo T4F	TAD1375VE	2016	388	2287	CHE Diesel					
Top handler			Diesel			2021	388	1641	CHE Diesel					
Top handler			Diesel			2021	388	2413	CHE Diesel					
Top handler			Diesel			2021	388	1902	CHE Diesel					
Top handler	Taylor	X280M	Diesel			2020		52	CHE Diesel					
Top handler	Taylor	XLC975	Diesel	Cummins	Tier 4 Final	2018		4275	CHE Diesel					
Top handler	Taylor	XEC207/8	Diesel	Cummins	QSB6.7 Tier 4 Fin	2015		1082	CHE Diesel					
Top handler	Fantuzzi	FDC25K8	Diesel	Caterpillar	C7.1 Tier 4 Final	2014	250	371	CHE Diesel					
Top handler	Taylor	XEC207/8	Diesel			2019		513	CHE Diesel					
Top handler	Taylor	XEC207/8	Diesel	Cummins	Tier 4 Final	2019		1618	CHE Diesel					
Top handler	Taylor	THDC955	Diesel		Tier 4 Final	2018		1469	CHE Diesel					
Top handler	Taylor	TEC950L	Diesel			1999		1	CHE Diesel					
Top handler	Taylor	XEC207/8	Diesel			2020		1587	CHE Diesel					
Top handler	Taylor	ZLC	Electric					3205	CHE Electric					
Top handler	Taylor	ZLC	Electric					2936	CHE Electric					
Truck	Freightliner		Diesel	Cummins	5.9	2005	185	152	CHE On Road Diesel		1/1/2012			11/1/2022
Truck	Freightliner		Diesel	Cummins	5.9	2005	185	274	CHE On Road Diesel		1/1/2012			11/1/2022
Truck	Freightliner		Diesel	Cummins	5.9	2005	185	148	CHE On Road Diesel		1/1/2012			11/1/2022
Truck	Peterbuilt		Diesel	Cummins	ISC	2006	240	784	CHE On Road Diesel					11/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Truck	Ford	F750	Diesel	Cummins	ISC	2008	240	1013	CHE On Road Diesel					11/1/2022
Truck	Peterbuilt		Diesel	Cummins	ISC	2006	240	803	CHE On Road Diesel					11/1/2022
Truck			Diesel			1988			CHE Diesel					4/1/2021
Truck			Diesel			1996		0	CHE Diesel					4/1/2021
Truck	Sterling		Diesel	Caterpillar	C7	2005	250	148	CHE On Road Diesel		11/13/2013			
Truck	Sterling		Diesel	Caterpillar	C7	2005	250	151	CHE On Road Diesel		11/7/2013			
Truck	Sterling		Diesel	Cummins	ISC	2007	330	894	CHE On Road Diesel					
Truck	Sterling	LT8500	Diesel	Cummins	ISC	2008	250	963	CHE On Road Diesel					
Truck	Peterbilt	335	Diesel	Cummins	ISC	2008	250	617	CHE On Road Diesel					
Truck	Freightliner		Diesel	Cummins	ISL	2013	350	1002	CHE On Road Diesel					
Truck	Terex	40T 33-07	Diesel	Cummins	QSK19	2007	525	2177	CHE Diesel					
Truck	Terex	40T 33-07	Diesel	Cummins	QSK19	2007	525	1770	CHE Diesel					
Truck	Freightleiner	M2-106	Diesel	Cummins	ISB6.7	2013	200	1129	CHE On Road Diesel					
Truck	Caterpillar	TA30	Diesel	Cummins	QSM11	2006	350	169	CHE Diesel					
Truck	Terex	TA400	Diesel	Scania		2014	444	2924	CHE Diesel					
Truck	Caterpillar	772G	Diesel	Caterpillar	C18	2020	598	1186	CHE Diesel					
Truck	Caterpillar	772G	Diesel	Caterpillar	C18	2020	598	1145	CHE Diesel					
Truck	Caterpillar	772G	Diesel	Caterpillar	C18	2020	598	1183	CHE Diesel					
Truck	Ford	FT001	LPG	Ford	330EFV	1973		297	CHE Propane					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	200	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	7	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	936	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	357	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	474	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	996	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	1670	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	38	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	201	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	1139	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	895	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	0	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2012	200	284	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	0	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	886	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	0	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	1790	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	385	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	1078	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	5	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	530	CHE On Road Diesel					
Yard tractor	Ottawa	4 x 2	Diesel	Cummins	ISB6.7 200	2015	200	870	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2651	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2817	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1076	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2781	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2634	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1360	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2650	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1604	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1944	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2485	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2708	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2595	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2768	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	3238	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1244	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	778	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2905	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	3040	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	3234	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	788	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	1763	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	3161	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2180	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2413	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2726	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2131	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	143	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2665	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2205	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1804	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2262	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1079	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2035	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1908	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	72	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2345	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2087	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2366	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1273	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2217	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2365	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2529	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2395	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2106	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2478	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2377	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	461	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1799	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1259	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2575	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2728	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1481	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	1588	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2420	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2300	CHE On Road Diesel				6/1/2021	

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2674	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB240	2007	240	2394	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2543	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	3042	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1165	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1425	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2065	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1784	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1783	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2706	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2138	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2774	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1287	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2825	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2219	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	953	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2295	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2017	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2732	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1099	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2149	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	1606	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2205	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB	2008	240	2517	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2700	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2609	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2688	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2437	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2595	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2954	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1945	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2414	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1438	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2846	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2735	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2396	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2920	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1606	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	515	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2140	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2571	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1392	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1392	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2415	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	3046	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2369	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2216	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2653	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	988	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	1580	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2687	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2008	240	2255	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2552	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2437	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	1331	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2759	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2364	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	1757	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	1656	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2695	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2770	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2012	220	2980	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	1849	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	2465	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2011	220	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1876	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2846	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2880	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1936	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2470	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	52	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	376	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2477	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	892	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1900	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1982	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1932	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	788	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2637	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2319	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	3770	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2303	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1199	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2531	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	0	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2484	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2872	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2281	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2037	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2486	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2193	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2654	CHE On Road Diesel				6/1/2021	

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	807	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	1995	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2557	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2469	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2013	220	2577	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2717	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2614	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	4851	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2214	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2259	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2129	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	658	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2826	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2367	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2132	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2201	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2310	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2478	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2221	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	878	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	1975	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2764	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2542	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	3056	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	783	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2577	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	1607	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2263	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	184	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2759	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2485	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2426	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2615	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	747	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2185	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2528	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2582	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2713	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2926	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2224	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2525	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	2629	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2014	220	3105	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2610	CHE On Road Diesel				6/1/2021	
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB	2015	225	2487	CHE On Road Diesel				6/1/2021	
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1644	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	927	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2423	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1783	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1492	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2532	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	523	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1945	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1917	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	296	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	931	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	927	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2051	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1565	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	5	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	434	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1865	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1810	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1776	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1682	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1317	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1816	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2685	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1842	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1218	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1511	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	452	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2251	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2152	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2053	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2397	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1275	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	66	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2172	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1785	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	2539	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1900	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1752	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa	C-50	Diesel	Cummins	ISB07 240	2008	240	1757	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2011	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1717	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1852	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1369	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2265	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2695	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1920	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1871	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2262	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2286	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1852	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2351	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2404	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2468	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2167	CHE On Road Diesel					11/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2602	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2843	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1766	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2996	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2300	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1822	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2445	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1991	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2145	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2039	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2163	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2090	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1911	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2466	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2443	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1855	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2119	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	1812	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	0	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB6.7	2012	240	2413	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1361	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2216	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1855	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2892	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2197	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2259	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2607	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1989	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2542	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2624	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	3008	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2431	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2136	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2345	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2440	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2591	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	659	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2649	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2567	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2472	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2801	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2661	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2287	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1645	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2010	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1375	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2492	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2327	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2855	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1987	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2734	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1420	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2147	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1780	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	1801	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel	Cummins	ISB6.7	2014	240	2111	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1429	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		2004	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1694	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1281	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1569	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1853	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1704	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1443	CHE On Road Diesel					11/1/2022
Yard tractor	Ottawa		Diesel			2015		1175	CHE On Road Diesel					11/1/2022
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1243	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1165	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1581	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1092	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1302	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210		CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1109	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1529	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1415	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1423	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1067	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1217	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1062	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1601	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210		CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1163	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	300	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1875	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1283	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1535	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	2695	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1101	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210		CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1279	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1572	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	716	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1020	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210		CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210		CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	149	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	841	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	0	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1675	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1053	CHE On Road Diesel					4/1/2021

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1191	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity		Diesel	Cummins	ISB 07	2008	210	1116	CHE On Road Diesel					4/1/2021
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-200	2007	200	0	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	475	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	554	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	499	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	256	CHE On Road Diesel				11/1/2022	
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB-07	2007	200	477	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottowa	4x2	Diesel	Cummins	ISB-6.7	2015	200	380	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottowa	4x2	Diesel	Cummins	ISB-6.7	2015	200	487	CHE On Road Diesel				11/1/2022	
Yard tractor	Ottowa	T2-4x2	Diesel	Cummins	QSB-6.7	2015	173	244	CHE Diesel				11/1/2022	
Yard tractor	Ottowa	T2-4x2	Diesel	Cummins	QSB-6.7	2015	173	383	CHE Diesel				11/1/2022	
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1731	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2441	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1641	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1777	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1574	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1635	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1402	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1864	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1885	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2544	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	401	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	922	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2583	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2018	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1678	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2114	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	932	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2253	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	926	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2316	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1580	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	616	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2094	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2321	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2329	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2135	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1866	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2500	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	1972	CHE Diesel					
Yard tractor	TICO	Pro-spotter	Diesel	Cummins	QSB Tier 4f	2019	158	2366	CHE Diesel					
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	430	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1393	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1338	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1179	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	937	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1677	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1017	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1029	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	849	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1368	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1832	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1365	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1515	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	898	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	27	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	820	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	915	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1335	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel		QSB 6.7	2011	200	1318	CHE Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1578	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	55	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1891	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1474	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1542	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1821	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1167	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1747	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1549	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2050	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	564	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	564	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	874	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2358	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1956	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1446	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1401	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1918	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1943	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240		CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1085	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2002	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2028	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1869	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2104	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2099	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1514	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1276	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	982	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1585	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2047	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1662	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2065	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	473	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1732	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2000	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1880	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2087	CHE On Road Diesel					10/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1653	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1561	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	2047	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	2039	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1907	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1732	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	2184	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2251	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1942	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2229	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1520	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1451	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	2430	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2085	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1841	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1050	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1924	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1930	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1970	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	2118	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1317	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1967	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	2651	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	2603	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1903	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1789	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1821	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	2732	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	1801	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1392	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2008	240	178	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1692	CHE On Road Diesel					10/1/2022
Yard tractor	Ottowa	C-50	Diesel	Cummins	ISB6.7	2007	240	1872	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2099	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1543	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1191	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1766	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2074	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1484	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1195	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1000	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2210	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2122	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1172	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	50	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2499	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2497	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1596	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	884	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1598	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1590	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1439	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	2882	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	1981	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2012	250	975	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1270	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1665	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2809	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1953	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1217	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1871	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1617	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1133	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2310	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1874	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1228	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1918	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1892	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2064	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1672	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1632	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1732	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2016	250	1974	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2133	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1300	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1416	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2203	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2238	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2569	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2063	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	954	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1555	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2964	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2054	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2064	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1873	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1993	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1833	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2285	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1439	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2098	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2566	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2703	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2094	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1728	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2171	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1650	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	1953	CHE On Road Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	ISB6.7	2014	250	2641	CHE On Road Diesel					10/1/2022

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1040	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1174	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1677	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1303	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	174	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1713	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	888	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1086	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1619	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1615	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1417	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1773	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1598	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2015	250	1511	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	0	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1188	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1691	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1595	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1567	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	83	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1057	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1384	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1126	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1438	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	925	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	844	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	445	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1031	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1065	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	749	CHE Diesel					10/1/2022
Yard tractor	Ottawa	4x2	Diesel	Cummins	QSB 6.7	2016	200	1231	CHE Diesel					10/1/2022
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	2258	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1853	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	521	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1588	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1703	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	70	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	833	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1752	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	781	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1694	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	836	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1995	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1825	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	2044	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	839	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	553	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	446	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1873	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	834	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	1981	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	1743	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 6.7	2007	220	43	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	366	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1981	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1472	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	986	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	198	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1140	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	993	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	695	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	2236	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1221	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	449	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	2030	CHE On Road Diesel					
Yard tractor	Capacity	TJ7000	Diesel	Cummins	ISB 220	2008	220	1245	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	750	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	1598	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	676	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	1698	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	1701	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	606	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	1818	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	158	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 10	2011	240	1977	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2086	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2210	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1980	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2241	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2022	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2288	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2123	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2315	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1399	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2178	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2042	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2116	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2127	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1754	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2014	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2008	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2426	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2050	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	2020	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	1886	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB 240	2012	240	396	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	270	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	856	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	869	CHE On Road Diesel					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1999	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	1878	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	769	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	2036	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	ISB6.7	2013	240	759	CHE On Road Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	39	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2429	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1741	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1955	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	14	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1948	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2485	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	568	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2264	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2335	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2586	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2256	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2405	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2323	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	586	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2500	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2472	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2515	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2506	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2726	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2429	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1905	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2460	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	2460	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	925	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	557	CHE Diesel					
Yard tractor	Capacity	TJ9000	Diesel	Cummins	QSB6.7	2015	225	1186	CHE Diesel					
Yard tractor			Diesel			2021	225	2526	CHE Diesel					
Yard tractor			Diesel			2021	225	2469	CHE Diesel					
Yard tractor			Diesel			2021	225	2615	CHE Diesel					
Yard tractor			Diesel			2021	225	2575	CHE Diesel					
Yard tractor			Diesel			2021	225	2397	CHE Diesel					
Yard tractor			Diesel			2021	225	2476	CHE Diesel					
Yard tractor	OTTAWA		Diesel			2007		500	CHE Diesel					
Yard tractor	OTTAWA		Diesel			2007		100	CHE Diesel					
Yard tractor	OTTAWA		Diesel			2011		500	CHE Diesel					
Yard tractor			Diesel			1995	250	2147	CHE Diesel		1/1/2012			
Yard tractor			Diesel			1995	250	1872	CHE Diesel		1/1/2012			
Yard tractor			Diesel			1995	250	1168	CHE Diesel		1/1/2012			
Yard tractor			Diesel			1995	250	1353	CHE Diesel		1/1/2012			
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	354	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	304	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	1300	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2019	200	1878	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	1588	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	2375	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	522	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	324	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	2951	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	802	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	2086	CHE On Road Diesel					
Yard tractor	Autocar	ACTT42	Diesel	Cummins	ISB6.7 200	2020	200	1745	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1950	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1524	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1552	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	801	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1550	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	2049	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	2002	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1754	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1697	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1768	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1240	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1373	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	718	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1496	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	2205	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	907	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	23	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	771	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	650	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	903	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1123	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	4	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	340	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	473	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	364	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	5	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	829	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1256	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	485	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	493	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	775	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	601	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	45	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	664	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	311	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	595	CHE On Road Diesel					
Yard tractor	Autocar	50007072	Diesel	Cummins	ISB6.7	2021	200	1058	CHE On Road Diesel					
Yard tractor	Ottawa	YT-30	Diesel	Cummins	Tier 4 Final	2019		346	CHE Diesel					
Yard tractor	BYD	Q1M	Electric				0	266	CHE Electric					
Yard tractor	BYD	Q1M	Electric				0	98	CHE Electric					
Yard tractor			Electric					599	CHE Electric					
Yard tractor			Electric					636	CHE Electric					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor			Electric					463	CHE Electric					
Yard tractor	Capacity		LNG	Cummins	ISLG-LNG 8.9L	2018	250	796	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	882	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	997	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	661	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1277	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	731	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1289	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	843	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1290	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	951	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1432	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1449	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1422	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1279	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1061	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1050	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1262	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1278	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1451	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1112	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	761	CHE On Road LNG					
Yard tractor	Capacity	TJ9000	LNG	Cummins	ISLG-LNG 8.9L	2018	250	1018	CHE On Road LNG					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1076	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	306	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1491	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1047	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	496	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1424	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1424	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1602	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1186	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	566	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	421	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	523	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1964	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	687	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	964	CHE Propane					
Yard tractor	Kalmar	PT122	LPG	Cummins	LPG 195	2004	195	1682	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1229	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	2284	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1063	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1861	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	492	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1786	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	648	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1204	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	2368	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	639	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	932	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	2098	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	2074	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	2100	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	183	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1071	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	371	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	793	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	1950	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG	Ford	6.8L V10	2011	231	2073	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	789	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2211	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	855	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1782	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2848	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1639	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1842	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2223	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	570	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	278	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1886	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2095	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1668	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1809	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	42	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2451	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2774	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1976	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	3042	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1822	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1303	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2117	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1516	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1603	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2944	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2175	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2388	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1817	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	156	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2470	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2346	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2570	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2667	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	344	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2740	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1989	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2016	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2427	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2815	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1209	CHE Propane					

Port Equip Type	Equip Make	Equip Model	Engine Type	Engine Make	Engine Model	Engine Year	HP	Annual Hours	Category	DPF level 2	DPF level 3	Blue Cat	RD80/BD20	RD99
Yard tractor	Capacity	TJ9000	LPG			2007	195	2672	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1726	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2388	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2968	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	3213	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	1845	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2870	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2168	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2463	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2773	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2922	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2769	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	2062	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2007	195	3009	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2884	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1963	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2783	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	992	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2414	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2298	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2948	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2133	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2258	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	192	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2388	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2593	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2229	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2609	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	28	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1666	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	191	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2821	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1895	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2191	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1511	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2782	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1513	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2433	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2011	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2362	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2778	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2988	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1955	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2772	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2735	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	1931	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2710	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2548	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2440	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	2189	CHE Propane					
Yard tractor	Capacity	TJ9000	LPG			2008	195	396	CHE Propane					